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An Address
ON
SOME POINTS IN THE NATURAL HISTORY OF UTERINE FIBROIDS.

Delivered before the North London Medical and Chirurgical Society on Oct. 18th, 1899.

BY F. H. CHAMPNEYS, M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN-ACCOUCHEUR TO ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—In selecting for this evening the subject of uterine fibroids I have been mindful of the fact that while rarities have their own special interest the most important subjects are, generally speaking, the commonest. Again, I believe it is the general experience of teachers that each year they become more elementary, not because either their own or their hearers' knowledge gets less but because they become more and more conscious of the fact that it is fundamental principles to which resort has to be generally made for the solution of problems and that these need above all things to be insisted on. I do not therefore propose to discuss on this occasion the latest discoveries in the structure or pathology of fibroids or the details of their operative treatment, but rather to go to the foundations of the subject—to inquire to some extent into their natural history: (1) how common they are; (2) what harm they do; (3) how often they do it; and (4) what follows from these considerations.

HOW COMMON ARE UTERINE FIBROIDS?

This question can only be answered approximately. In order to answer it quite accurately we should require to know the results of post-mortem examinations of all female members of the community made with due attention to the point. Clinical examination often fails to discover a small fibroid, and, indeed, many small ones may be embedded in the walls of a uterus not in size beyond the limits of normality without making their presence evident to anyone who does not search for them in the post-mortem room by multiple incisions. Clinical records in hospitals must, therefore, greatly understate their frequency on the one hand, while on the other hospitals attract to themselves pathological rather than normal specimens. The latter is also true of post-mortem hospital records, and must of course be discounted. Still, if we could take notice of the cases in which fibroids occurred without causing symptoms, or at least without constituting the complaint for which the hospital was sought, we should gain an idea of their frequency.

In attempting an answer to some of the questions concerning our subject I have based my statements upon the records of St. Bartholomew's Hospital. The figures will speak for themselves.

Out-patients.—From January, 1866, to July 13th, 1899 (a period of 32½ years) the number of out-patients seen in the department for diseases of women was 40,615. Of these 40,615 cases 1043 were diagnosed as cases of uterine fibroid. Therefore the proportion of cases in which uterine fibroids were diagnosed was 2½ per cent.

In-patients (in Martha Ward, for diseases of women).—From 1881 to 1899 (July 20th), 18 years, the total number of all cases was 5785. Of these 547 were diagnosed as cases of uterine fibroid. Therefore the proportion of cases in which uterine fibroids were diagnosed was 9·4 per cent. There were no in-patient notes before 1881.

Necropsies.—1. Medical post-mortem notes, 1867 to 1899. Examination was made of the bodies of 1398 women of 30 years of age and over. Uterine fibroids were noted in 74 cases—that is, just over 5 per cent. It seems probable that many cases in which small fibroids existed have not been noted. 2. Surgical post-mortem notes, 1885 to 1899 (there were no notes before 1885). The total number of examinations of the bodies of patients of 30 years of age or over was 462. Uterine fibroids were noted in 67—that is, in 14·4 per cent. It is probable that many cases of small fibroids have not been noted. In several cases in which death occurred after operations on fibroids no post-mortem examination was allowed; therefore the necropsies do not represent the total number in which the presence of fibroids was proved. Besides this, no post-mortem examination is made without permission, and none is made on a certain number dying in the hospital. The results will be seen to vary very considerably. It might, perhaps, be suggested that it would be fair to put the error in excess due to the aggregation in a hospital of pathological cases against the error in deficiency due to the overlooking of fibroids in cases in which they were not specially searched for, but I can see no reason to suppose that these errors would balance each other. I am certain, however, that fibroids, both in clinical practice and in the post-mortem room, are often overlooked. It seems to me, therefore, from the above statistics, impossible to answer numerically the question, What percentage of women have fibroids? Still, it is quite certain that they are very common, and this is generally admitted.

It is plain that the difficulty in estimating the frequency of fibroids is somewhat complex. The numbers diagnosed either in the out-patient room, in the wards, or in the post-mortem room (all of which fall below the mark, as above explained) represent an approximation to one part of the answer to the question "How *many*?" but to answer the question "How frequent?" we need to know the numbers from which these cases have been gathered. In other words, while we know something of the *enumerator* of our fraction we still have to seek the *denominator*. The out-patients themselves are *selected* from the populace, for it is plain that people do not apply to a hospital at all unless they feel in some ways out of health. The in-patients are not only selected from the out-patients but are also selected from an uncertain and unascertainable number under the care of British medical men not only in the United Kingdom but also in British possessions throughout the world.

In-patients.—With regard to the in-patients the total number of female in-patients at St. Bartholomew's Hospital from 1881[1] to the end of 1898 (the returns for 1899 are not yet completed) was 49,396; from 1870 to the end of 1898 (no figures were available before 1870) the number was 76,669.

Statements are made as to the frequency of fibroids on the authority of Klob and Bayle. In Dr. Haultain's article, for instance, in Allbutt's System of Medicine Bayle is said to state that they occur in 20 per cent. of all women over 35 years of age. The reference given for this statement is "Dict. Paris, vol. vii., p. 73," which looks like a second-hand quotation from the following: "En général, on peut avancer que la matrice est extrêmement disposée à donner naissance à des corps fibreux; car en faisant l'ouverture du cadavre du cent femmes prises indistinctement et âgées de plus de trente-cinq ans, il en est au moins vingt chez lesquelles on trouve un ou plusieurs de ces corps accidentels."[2] This is seen to be merely an impression based on no figures. The quotation from Klob[3] is as follows: "Die runden Uterus-Fibroide entwickeln sich niemals vor der Pubertät, und sehr selten vor dem 30. Jahre. Von da an steigt ihre Häufigkeit, und ist mit den klimakterischen Jahren schon so bedeutend, dass man bei nach dem 50. Lebensjahre verstorbenen Frauen gewiss bei 40 prozent mit Fibroiden bezeichnete Uteri findet." ("Round uterine fibroids never occur before puberty and very rarely before the thirtieth year. From that period their frequency increases and at the climacteric period it is such that undoubtedly 40 per cent. of the uteri of females who die after the fiftieth year contain fibroid tumours.") This is also a mere opinion and is based upon no recorded facts.

Out-patients (general).—During the period 1885–1899 (the middle of the year) 1,918,435 out-patients were treated at St. Bartholomew's Hospital and of these at least a half, or 959,217, were females. During this period there were 113 cases of fibroid in the post-mortem room—i.e., 0·01 per cent. of out-patients. There were 1198 post-mortem examinations, medical and surgical, on women of or over 30 years of age. Therefore fibroids occurred at the rate of 9·4 per cent. of post-mortem cases.

[1] There were no records from special wards previously to 1881.
[2] Bayle: Dictionnaire des Sciences Médicales par une Société de Médecins et de Chirurgiens, vol. vii., p. 573, Paris, 1813.
[3] Pathologische Anatomie der Weiblichen Sexualorgane, 1864, S. 167.

WHAT SYMPTOMS DO UTERINE FIBROIDS CAUSE?

These include (1) weight and pressure; (2) bleeding; (3) pain (including dysmenorrhœa); and (4) catarrh.

1. *Weight and pressure.*—The symptoms of weight and pressure require little explanation. Any variety of fibroid, if sufficiently heavy, may cause symptoms of weight; if sufficiently large may cause pressure. If the tumonr is above the pelvis pressure symptoms will be less; if in the pelvis a tumour of the size of a large fœtal head is almost bound to cause these symptoms. Pressure symptoms include the following conditions: (1) painful, frequent, or difficult micturition, even retention of urine, especially if the tumour is in the hollow of the sacrum. It must, however, be noted that even small tumours, which cannot conceivably cause symptoms either by weight or pressure, sometimes cause retention of urine. This can only be the result of reflex action; it is in this sense neurotic; it is also generally temporary. Pressure on the urinary tract may lead to cystitis and hydronephrosis, which in rare cases causes death. Pressure symptoms are generally aggravated before the menstrual flow, when the uterus and tumour swell and are generally relieved as soon as the flow is established. It is to this cyclical change in fibroids that we owe our best proof of the sanguineous afflux and physiological swelling of the uterus before menstruation and its subsidence with the establishment of the flow symptoms in cases of urinary obstruction are often very obscure, as is well known, and there may be none directly pointing to the kidneys. The ureters are less liable to be obstructed by a fibroid than by a malignant growth; since the fibroid as a rule pushes them aside, while the malignant growth infiltrates the surrounding tissues. (2) Painful or difficult defecation and very rarely obstruction. It is certain that pressure, from whatever cause, acts much more readily in the pelvis on the urinary than on the intestinal tract. This is exemplified by cases of retroversion of the gravid uterus, in which the stock symptom is retention of urine, while intestinal obstruction, or even serious impediment, is very rare. In the same way, where defecation is interfered with in cases of fibroids, it is usually from weakening of the bowel due to interference with its circulation, innervation and general nutrition rather than from direct pressure. (3) Varicose veins, as of the legs or abdomen. This symptom again is rare. Fibroids, as a rule, do not press on the vena cava inferior or on the iliac veins above the brim, these veins being protected by their situation and the tumour being generally more or less moveable. Symptoms of obstruction to veins are commoner in malignant growths, especially when the symptoms are one-sided, since malignant growths infiltrate the surrounding cellular tissue and grow round the veins. In the pelvis a fibroid may cause venous obstruction and, incidentally, hæmorrhoids. (4) Pressure on the nerves, causing neuralgia, especially in the legs.

2. *Bleeding.*—This takes place from the whole inner surface of the uterus, not only from the tumour; it is often apparently due to endometritis, the endometrium being often very greatly thickened, not especially over the tumour, where it is, on the contrary, sometimes thinner than elsewhere. In some cases the thickened endometrium takes the form of mucous polypi. When due to this cause curetting of the uterus may greatly modify the bleeding. In some cases the endometrium is, on the contrary, no thicker, or even thinner, than normal. As a rule the hæmorrhage is capillary; occasionally a venous sinus is opened by ulceration and severe and fatal hæmorrhage may result.

3. *Pain (including dysmenorrhœa).*—The symptom of pain may be caused by pressure and weight, but the character of the pain, and especially its general association or its general intensification at the menstrual period, point to a different cause. This cause is almost certainly painful uterine contractions. The uterus is believed to contract spontaneously at the menstrual period; with a tumour in its cavity or embedded in its substance it is hardly wonderful that these contractions should be aggravated. The spontaneous contraction of the uterus can be observed best in cases of large fibroids in which the uterus may sometimes be observed to grow smaller before the onset of the flow. Dysmenorrhœa is merely the above pain. It deserves one word to itself from the fact that patients who are not aware of having any tumour are often driven to their medical adviser by dysmenorrhœa. I am convinced that fibroids often give trouble very early, for it has several times happened to me to see a patient of the age of 30 years or over suffering from dysmenorrhœa and sterility, with a continuous history of dysmenorrhœa since puberty or soon after, for which the cervix had been dilated or divided in vain and in whom the uterus was now palpably enlarged by a small fibroid, the character of the pain not having changed since its onset.

4. *Catarrh.*—This is sometimes very great. It is commonly present in, and is probably due in many cases to, endometritis of the body of the uterus. The copious colourless secretion in these cases, rather thinner than in ordinary cervical catarrh, gives us the best opportunity for studying the secretion of the uterine mucosa as distinct from that of the cervix.

As regards the above symptoms, it must be distinctly stated that subperitoneal fibroids cause no symptoms except those of weight and pressure. When a woman with a subperitoneal fibroid suffers from hæmorrhage, this is not due to the subperitoneal fibroid, but to an interstitial or submucous fibroid, since these tumours, like other misfortunes, are often not single.

WHAT IS THE MORTALITY FROM FIBROIDS.

In order to arrive at a statement on this subject it will be well to divide the cases into those which have been operated on and those in which no operation has been performed. As has already been stated, the medical post-mortem notes of St. Bartholomew's Hospital from 1867 to 1899 show that examination was made of the bodies of 1398 women of 30 years of age or over. Uterine fibroids were noted in 74 cases, or just over 5 per cent. The cases are as follows: 1. In 1873 a patient, aged 45 years, died from "repeated copious bleeding from the uterus. Convulsions preceded death." At the post-mortem examination besides other fibroids were "two large pedunculated fibroids in the uterine cavity." 2. In 1878 a patient, aged 39 years, died from diseased kidneys due to the pressure of a uterine fibroid. In 1879 a patient, aged 44 years, died from sepsis following incision of the capsule of a submucous fibroid. In 1880 a patient, aged 47 years, died from sepsis following the removal of a fibroid polypus. The following patients, who will be included later under the results of operations, also died; a patient, aged 44 years, from a sloughing fibroid, and two others, aged respectively 43 years and 46 years, from incomplete enucleation. 3. In 1896 a woman, aged 62 years, died from dilation of the ureters and the kidneys, doubtfully due to the pressure of a fibroid. In all the other cases the fibroids were in no way responsible for the death of the patients. Thus we see that the mortality of the 74 cases apart from operation amounted to three, or 4·05 per cent. But if we calculate the percentage of mortality apart from operation we shall see that it took 2,160,112—that is, half of the total number of out-patients from 1866 to 1898—to furnish three cases. Thus the percentage of mortality apart from operation was 0·000138.

The surgical post-mortem notes (which date from 1885, previously to which none are available) from 1885 to 1899 give accounts of the examination of the bodies of 462 females of 30 years of age or over. The number in which fibroids were noted is 67. In the following 15 cases death was due directly or indirectly to the fibroid. Two patients, aged respectively 31 years and 32 years, died from sepsis after oöphorectomy. A patient, aged 37 years, died from sepsis. The fibroid was mistaken for an ovarian tumour and was punctured after abdominal section. Two patients, aged respectively 44 years and 48 years, died from peritonitis after hysterectomy. A patient, aged 44 years, died from shock after hysterectomy. Patients died after hysterectomy at the following ages: 44 years, 39 years, 37 years, 42 years, 34 years, and 37 years. One patient, aged 50 years, died after colotomy for intestinal obstruction caused by fibroids. In the remaining 52 cases the fibroids had nothing to do with the death of the patient. It will be seen that no patient died apart from operation. Cases of operations will be subsequently referred to. In many cases no post-mortem examination was made.

In the Martha Ward (for diseases of women) at St. Bartholomew's Hospital, of which the notes date from 1881, 5785 women were treated between 1881 and July 20th, 1899. Of these there were 547 cases of uterine fibroid—a proportion of 9·4 per cent. Out of these 547 cases there were 29 deaths, all of which, with one exception, followed operation. In the

exceptional case the patient died in 1885 a few hours after admission and it is doubtful whether the fibroid had anything to do with death (no necropsy was allowed). The history was one of vomiting for several weeks, worse for a week; in hospital the symptoms were vomiting and collapse. The deaths were as follows. After hysterectomy, 15 deaths; after oöphorectomy, two deaths; after removal of polypus, two deaths; after enucleation of the tumour, four deaths; after removal of the sloughing fibroid, three deaths; after exploratory abdominal incision, one death; and after ovariotomy, one death (the fibroid caused no symptoms).

The details of operations are as follows. Polypi removed: 91 with two deaths (2·2 per cent.), one of which occurred in 1882 from peritonitis and the other, which took place in 1895, was a case of incomplete operation on a large fibroid polypus. Hysterectomy: 55 operations with 15 deaths (27·2 per cent.). One death occurred in 1883, five in 1894, two in 1895, three in 1896, two in 1897, and two in 1898. Oöphorectomy: five operations with two deaths, both occurring in 1886 (40 per cent.). Sloughing fibroids removed: 13 with three deaths (23 per cent.). One death took place in 1891, one in 1894, and one (following labour) in 1898. Enucleation: 31 operations with four deaths (12·9 per cent.). The deaths occurred respectively in 1885 (from sepsis), in 1888 (from pulmonary embolism), in 1889 (from sepsis, incomplete operation), and in 1893 (from collapse, incomplete operation). An exploratory abdominal incision was performed in one case in 1888. Nothing was removed; there was sepsis. Incisions of capsule: two with no death. Incision and drainage of a cystic fibroid were carried out in one case. The patient recovered.

The following table gives the results of abdominal hysterectomies for fibroids at all the London hospitals of which statistics are published, at least as far as I have been able to ascertain.

TABLE I.—*Showing the Abdominal Hysterectomies for Fibroids performed at Five of the London Hospitals.*

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.

(210 Operations; 30 Deaths: Mortality 14 per cent.)

Year.	Operations.	Deaths.	Year.	Operations.	Deaths.
1889	14	2	1894	25	3
1890	24	0	1895	17	3
1891	19	5	1896	17	4
1892	30	3	1897	21	3
1893	23	2	1898	20	5

ST. BARTHOLOMEW'S HOSPITAL.

(55 Operations; 15 Deaths: Mortality 27 per cent.)

1883	1	1	1896	7	3
1891	1	0	1897	10	2
1892	3	0	1898	9	2
1894	10	5	1899*	7	0
1895	7	2			

* Up to July 20th.

MIDDLESEX HOSPITAL.

(42 Operations; 9 Deaths: Mortality 21 per cent.)

1890	5	2	1894	1	0
1891	3	1	1895	3	0
1892	3	2	1896	6	1
1893	0	0	1897	21	3

CHELSEA HOSPITAL.

(92 Operations; 11 Deaths: Mortality 12 per cent.)

1894	4	0	1897	33	5
1895	6	1	1898	40	4
1896	9	1			

ST. THOMAS'S HOSPITAL.

(34 operations; 9 deaths; mortality, 26 per cent.)

1892	3	0	1895	13	4
1893	3	0	1896	5	2
1894	5	2	1897	5	1

The above figures make a grand total of 433 cases with 74 deaths, or an average mortality of 17·0 per cent. Taking the mortality for each year we get the following figures:—

Year.	Operations.	Deaths.	Percentage.
1889	14	2	14·0
1890	29	2	6·9
1891	23	6	26·0
1892	39	5	12·8
1893	26	2	7·6
1894	45	10	22·2
1895	46	10	21·7
1896	44	11	25·0
1897	90	14	15·5
1898	69	11	15·9

I have preferred to take hospital statistics as a basis for arriving at the mortality from operations on fibroids to taking the results of special operators, because what we are seeking is not the question how skilful any given operator may be, but what is as a matter of fact the mortality after this operation. It will be seen that the mortality is even now very much the same as it was 10 years ago. It must also be remembered that extensive operating tends to lower the percentage of mortality, for it includes many simple and therefore less dangerous cases than would be operated on where well-marked symptoms only are regarded. This is a well-known fact.

Summary.—We have now considered the subject as far as our present inquiry goes. Taking St. Bartholomew's Hospital as our field of investigation we see that fibroids occur in the post-mortem room at the rate of 0·01 per cent. of female out-patients, or 9·4 per cent.—i.e., 1 in 10,000—of necropsies, and that in only three cases did fibroids cause death apart from operation. The mortality from operation is 17 per cent. The mortality apart from operation is 3 in over 2,000,000 (2,160,112), or 0·000138 per cent. It seems undeniable that deaths from fibroids apart from operation are excessively rare.

The proper place for the deaths after hysterectomy is a matter for debate and must depend upon the practice of the surgeons concerned. If, for instance, the surgeon's practice is to operate in cases in which life is not threatened these deaths are not properly deaths from fibroids but deaths from operation; if, on the other hand, the surgeon operates principally on cases in which life is threatened the deaths after his operation may be justly reckoned in large part as deaths from fibroids. It seems quite evident that the mortality will be greater in the latter case also, and that percentages of mortality after operation are by no means necessarily a just test either of the skill of the operator or of the correctness of his practice. In this connexion it may be well to remind ourselves of the bearings of ovariotomy on hysterectomy. The similarity between the two operations has rather obscured the contrast between the two diseases. The natural termination of all ovarian tumours of the usual kind is death. Speaking generally, therefore, they should all be removed. The natural course of fibroid tumours of the womb, on the contrary, is that, with rare exceptions, they do not cause death. Speaking generally, therefore, it is not necessary to life to remove them.

Whether it is desirable or not to remove them depends upon the merits of each case. For instance, bleeding is a symptom which may urgently call for relief by operation, though deaths from hæmorrhage are extremely rare. A perpetually recurring severe loss of blood may ruin a life even if it does not cause death, and may expose a patient to a greatly increased risk from many intercurrent diseases. It must be remembered, also, that long-continued severe hæmorrhage is apt to destroy the power of making blood; it destroys the mint as well as the bank. Pain, again, though very difficult to estimate in another, may be a correct indication. In this matter objective signs of suffering, such as loss of sleep and affection of the pulse during the pain, are to be carefully observed and are of more value than graphic descriptions on the part of the patient. Pain may ruin a life though it probably never causes death. Pressure symptoms, apart from pain, are often an urgent indication for operation. Dangerous pressure symptoms almost invariably affect the urinary tract and cause retention of urine, a condition which should not

be allowed to continue as directly threatening life. A comparatively small fibroid impacted in the pelvis and causing retention, if it cannot be pushed up into the abdomen, should be removed without delay. A fibroid may be fixed in the pelvis by impaction, by adhesions, or by growing under the peritoneum. It is only when fixed by simple impaction that it can be pushed up. To make a fair attempt chloroform should be thoroughly given; even thus attempts at reposition often fail unless air is admitted into the peritoneal cavity by abdominal section. I have found a uterine repositor such as Aveling's very useful in such cases, applied by the hand alone. It increases the reach and enables the manipulator to direct his pressure to greater advantage. Rapid growth is often an urgent indication for operation, especially when accompanied by bleeding, but I have seen a fibroid rise in a few weeks from just above the brim nearly to the costal arch, become markedly elastic, and then as rapidly shrink into the pelvis, doubtless from œdema. Still, rapid growth in a young subject, especially when accompanied by severe bleeding, is often an urgent indication. Mere size may or may not be an indication for operation. A large subperitoneal fibroid well up into the abdomen usually produces no symptoms except weight. The absence of a rigid wall anteriorly preserves the organs as a very general rule from pressure. The question here is usually one of convenience. Under these circumstances the proper course is to explain the real situation to the patient and let her choose. If she has to earn her own living she will probably claim (and justly claim) to be relieved of a burden which may interfere with her living. If well off, she may or may not wish to run the risk of operation. A cystic fibroid will grow, and it should be treated as an ovarian tumour—that is, it should be removed. In practice it will often be mistaken for an ovarian tumour. Malignant degeneration, though often talked of, is seen very rarely indeed. Its chief sign would be rapid growth, of which we have already spoken. I have never seen a case in which a well-marked fibroid has taken a malignant growth.

THE ETHICS OF OPERATIONS.

It may be well to discuss for a moment the principles of operations in general. If life can only be preserved by removing a diseased part it should be removed if operation provides even a fair chance of recovery. This is the case in ovarian tumours. If the risks of an operation are trivial and may be neglected an operation may be done for inconvenience only. This is the case in such an operation as circumcision. If life is not seriously threatened and the risks of operation are not trivial the risks of the operation should be markedly less than the risks of its absence *if the indication is danger to life*. Or, in any case, the risks of the operation should be decidedly outweighed by the advantages gained. Finally, the risks and the probable advantages should be frankly explained to the patient.

Nothing is commoner than to discover a fibroid in the abdomen causing no symptoms and exposing the patient to no risk. Such a tumour may be discovered by the patient herself by accident or more often is found by the medical man. To remove such a tumour seems unjustifiable. The removal of such a tumour in an old woman is more than unjustifiable, and a death from such an operation is worse than a calamity.

I have not entered into the question of previous medical treatment; this, of course, should always be tried where the conditions admit it.

There is a tendency at the present time to remove fibroids more freely. By way of justification there is a temptation to greatly exaggerate their dangers. Such excessively rare occurrences as malignant degeneration are pressed into service, and quoted as being within the bounds of probability. This is much to be deprecated. We have seen that the risks of fibroids to life apart from operation are very small indeed, and that not by an appeal to opinon or vague experience but to the history of a large hospital in the greatest city in the world. In deciding the question of hysterectomy for fibroids we ought to put ourselves in the place of the patient; to ask ourselves whether we would, under the circumstances of the patient, wish to be operated upon ourselves; or, perhaps better still, whether we would under the circumstances wish our wives, sisters, or daughters to be operated upon; in other words, whether we honestly believe the game to be really worth the candle.

We have not time this evening to discuss the question of other operations for fibroids. They are included in the table as having been easily accessible during the course of the investigation.

I ask my hearers to remember that as the result of a careful investigation of a female population of 959,217 it comes out that the frequency of fibroids in the post-mortem room was 0·01 per cent. and the mortality apart from operation 0 000130 per cent. I have to thank Dr. Drummond Robinson for much help in compiling the statistics.

TABLE II.

—	Population from which derived.	Number of fibroids.	Percentage.	Ratio.
Frequency of fibroids	40,615 out-patients in special department.	1043	2·5	1 in 38 nearly.
	5785 in-patients in special wards.	547	9·4	1 in 10·5
	1398 medical necropsies of women of 30 years or over.	74	5·0	1 in 18·8
	462 surgical necropsies of women of 30 years or over.	67	14·4	1 in 6·8
	959,217 female out-patients (1885 to middle of 1889).	113 fibroids in post-mortem room.	0·01 of out-patients	1 in 8488
	Ditto.	1198 necropsies on women of or over 30 years of age.	9·4 of necropsies (had fibroids) (113).	1 in 10·6
Mortality from fibroids apart from operation	2,160,112 female out-patients, from 1866 to 1898.	3	0 000138	1 in 720,037
Mortality from abdominal hysterectomies	433 abdominal hysterectomies in the London hospitals, from 1889 to 1898.	74 deaths.	17	1 in 5·8

Note.—The difference in the "populations" in the above tables is due to the fact that (as mentioned in the text) more perfect registration of numbers of patients and of their ailments has been a gradual process, and the necessary numbers cannot always be derived from statistics of more than a certain antiquity. In each case, however, care has been taken to state the source of the "population" or "denominator."

ON THE RESULTS WHICH HAVE BEEN OBTAINED BY THE ANTI-TYPHOID INOCULATIONS.

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BEFORE proceeding to summarise the more important results which have been obtained up to date by the application of the anti-typhoid inoculations which were inaugurated at Netley in July, 1896,[1] and which were described by me in association with Major D. Semple, R.A.M.C.,[2] it will be well to explain in a few words the conditions under which the inoculations whose results are reported below were undertaken.

Conditions under which the inoculations were performed.—The inoculations in question, with the exception of the inoculations at Poona which were undertaken by Colonel W. J. Fawcett, R.A.M.C., were done by me while on service in India with the Indian Plague Commission in the end of the year 1898 and in the beginning of the year 1899. They were done among the British troops in a series of military stations which lay along the route which was followed by the Commission during their tour of inquiry. Owing to the fact that

[1] THE LANCET, Sept. 19th, 1896.
[2] Brit. Med. Jour., Jan. 30th, 1897.

very little time was available before departure from England no sufficient supply of anti-typhoid vaccine could be prepared before starting. It was therefore necessary to manufacture vaccine *en route* during the intervals which occurred in the course of the sittings of the Plague Commission in Calcutta and Agra respectively. In these places the resources of local laboratories, presided over in the one case by Mr. Nield Cook and in the other case by Mr. Hankin, were in the most generous manner placed at my disposal for the purpose of making the vaccine. The vaccine was standardised on guinea-pigs which were carried about from place to place for the purpose of keeping them continuously under observation. Inasmuch as the bottles of vaccine had to be opened up repeatedly for the purpose of drawing off the material, and inasmuch as it was not possible to carry about an incubator to verify the continued sterility of the vaccine, this last was re-sterilised at 60° C. previously to undertaking each new series of inoculations. These particulars will suffice to show that the inoculations were undertaken under conditions which were very far from ideal. In particular there is reason to suppose that the results obtained (this applies notably to the inoculations done in Meerut and Lucknow which came last in series) may have been unfavourably influenced by a weakening of the vaccine brought about by repeated re-sterilisation.

Character of the vaccine which was employed.—The vaccine material which was brought out from England consisted of lysolised (1 per cent. lysol) four-week-old cultures of a virulent typhoid bacillus. These cultures had been prepared about 12 months previously. They had been sterilised by an exposure to a temperature of 60° C. The quantity of culture which was employed for each inoculation varied between 0·5 and 0·75 cubic centimetre. This last was the minimum quantity which was fatal to 100 grammes of guinea-pig. This vaccine was employed in inoculations done in Bangalore and at Agra. The additional vaccine material, which was either prepared at Calcutta and Agra or which was afterwards sent out from Netley, consisted of virulent typhoid cultures which had been grown for 24 hours on nutrient agar at a temperature of 37° C. These cultures also were sterilised for the most part at 60° C. In some cases, however, a higher sterilising temperature was employed. The quantity of this agar vaccine which was inoculated varied between 0·3 and 0·5 cubic centimetre, this last quantity corresponding approximately to the quantity of culture which grew on one square centimetre of agar surface. Measured by its effects on guinea-pigs this quantum was considerably less toxic than the quantum of broth culture which was spoken of above. Both varieties of vaccine gave in the doses in which they were employed fairly severe reactions on man. Unfortunately it was not in any case possible to undertake two successive inoculations.

Method by which the statistical material which is given below was collected.—The statistical material which is presented below has been compiled from information furnished to me by officers of the Royal Army Medical Corps actually in charge of troops in the various stations. This information has been supplemented by reports received from the commanding officers of the various inoculated regiments. I desire here to express my acknowledgments of the kindly assistance which was everywhere afforded me, not only in the actual carrying out of the inoculations but also in the collection of the statistics. This last task has not been free from difficulty owing, among other things, to the fact that the various regiments are, in the hot season, broken up into detachments which are dispersed in the various hill stations. The whole of the information which has as yet come to hand with regard to the results of the series of inoculations referred to above is summarised in the table given on the following page.

Taken as a whole the statistical material given herewith, though it cannot from the nature of the case be assumed to be either complete or free from errors, would appear to show conclusively that a certain measure of protection was conferred by the inoculation of the quantities of dead typhoid culture which have been specified above. In appraising the amount of that protection from the data which are given above the following facts must not be lost sight of:—1. The inoculated men in the above units were, taken as a whole, in practically every case men who were much more liable to contract typhoid fever than the uninoculated men; for in practically every case the inoculated consisted to a large, and sometimes to a preponderating, extent of young men who had only recently come out to India, while the uninoculated consisted to a very large extent of older and more seasoned—in other words, of less susceptible—individuals. It was in every case pointed out in the preliminary lecture in which the facts regarding anti-typhoid inoculation were laid before the men, that the young and susceptible new-comers were more particularly in need of the protection which, it was hoped, would be afforded by the inoculations. The commanding officers and the company officers, further, in many cases used their influence to get, so far as this was possible, all the young and unseasoned soldiers to volunteer for inoculation.

Read in the light of the above facts many of the results appear under a much more favourable aspect than that in which they appear on a mere inspection of the figures given in the table above. Thus, for instance, in the case of D Battery Royal Horse Artillery, a consideration of the facts will show that the results of inoculation are not fairly gauged by the fact that the sole case of typhoid fever which occurred in the battery was a case which occurred in an inoculated man.[3] The following were the circumstances under which the inoculations were done. The battery in question had only arrived from England a few months previously to the date of inoculation. On the previous day the battery had lost its first man from enteric fever. Owing to this and other favouring circumstances more than half of the battery, including most of the men who had come out from home, volunteered for inoculation. Those who did not volunteer for inoculation consisted in large part of seasoned men who had been transferred to this battery after its arrival in India. In view of this it will be manifest that the fact which deserves notice here is not so much the fact that one case occurred in the inoculated, while no case occurred in the uninoculated; it is rather the fact that a battery consisting in large part of men newly arrived from home has in the 11 months subsequent to the institution of the inoculations had only one case of enteric fever. The same thing holds true of the inoculations done in the 2nd Battalion Gordon Highlanders. Here, again, we have a body of inoculated men consisting in predominant part of men who had just come out from home; while we have a body of uninoculated in which there was a large element of seasoned soldiers who had been taken over from the battalion which had just returned to England. The figures given in the table for this regiment, which are already very favourable to inoculation, become much more strikingly so when they are considered in connexion with the circumstances which have just been detailed.

2. It must further be borne in mind in connexion with certain of the statistics which have been given above that the inoculations were in certain cases undertaken in the actual presence of a typhoid fever epidemic. These were the conditions in the case of the Gordon Highlanders at Umballa and more particularly in the case of the 3rd Hussars in Lucknow. In the case of the Gordon Highlanders 30 cases of enteric fever had occurred during the three months which had elapsed between the arrival of the regiment from England and the institution of the inoculations. In the case of the 3rd Hussars some 10 deaths from enteric fever had occurred in the interval of a few months which had elapsed since their arrival in India. In like manner a few cases of typhoid fever were occurring in the York and Lancaster Regiment at Agra at the time of inoculation. In conformity with the fact that inoculations were done in these cases in the presence of typhoid fever it was only to be expected that some of the inoculated would prove to have been incubating typhoid fever at the time of the inoculation. This turned out to be the case in the 3rd Hussars, five cases of enteric fever (occurring among the inoculated men) being admitted to hospital within the first 19 days after inoculation. In two of these cases there was a definite history of the men having been ill previously to inoculation. One similar case occurred among the inoculated in the York and Lancaster Regiment within a few days after inoculation. These cases have been distinguished by italics in the table, and they have not been reckoned in the general summary of cases contracted subsequent to inoculation.

3. Lastly, it is to be borne in mind that the results given above apply to men as distinguished from officers. In the

[3] The case in question was a somewhat anomalous one. It was the case of a man who, while in hospital for an injury to the foot, suddenly developed a high temperature and died within 24 hours. The post-mortem examination revealed ulceration of the intestine which was diagnosed as typhoid ulceration.

TABLE SHOWING THE RESULTS OF ANTI-TYPHOID INOCULATIONS.

Corps in which inoculations were done and stations in which the troops were quartered.	Period of observation.	Numbers under observation.		Cases of enteric fever.				Deaths from enteric fever.				Information received from	Remarks.
				Inoculated.		Uninoculated.		Inoculated.		Uninoculated			
		Inoculated.	Uninoculated.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.		
West Riding Regiment (Bangalore).	December, 1898, to Sept. 22nd, 1899.	223	753	1	0·5	8	1·0	0	0	2	0·25	Lieutenant R. W. Clements, R.A.M.C.	Case in inoculated reported to have been so mild as to render diagnosis somewhat uncertain.
Bangalore garrison (includes above).	Ditto.	276	1859	2	0·7	49	2·6	0	0	—	—	Major A. Peterkin, R.A.M.C.	The additional case in inoculated reported to have been extremely mild.
York and Lancaster Regiment (Agra).	January, 1899, to May 15th, 1899.	172	Say 900	*1*	—	20	2·2	0	0	4	0·4	Lieutenant-Colonel Routh, R.A.M.C.	Case in inoculated occurred eight days after inoculation. Number of uninoculated not communicated.
D Battery, Royal Horse Artillery (Umballa).	January to October, 1899.	105	63	1	1·0	—	—	1	1	—	—	Major S. Blakeley Russell, R.A.M.C. Lieutenant H. S. Wilson, R.H.A.	Battery had recently landed in India and had lost one case by enteric fever. The 63 uninoculated were for the most part men who had been long in India.
2nd Batt. Gordon Highlanders (Umballa and various hill stations).	January, 1899, to August 13th, 1899.	397	614	1	0·25	17	2·8	0	0	—	—	The late Colonel Dick-Cunyngham, V.C. Major S. Blakeley Russell, R.A.M.C. (Dagshai). Captain H. P. Johnson, R.A.M.C. (Solan).	The case assigned to inoculated was in a man whose name is not to be found on the rolls of inoculated. He is said to have had a much modified attack of typhoid.
North Staffordshire Regiment (Umballa and Sabathu).	January to July, 1899.	317	Say 700	5	1·6	14	2·0	1	—	1	—	Captain Stanley Walker, R.A.M.C. (Sabathu).	Number of uninoculated not communicated. This inoculated man is said finally to have succumbed to uræmia.
2nd Queen's Regiment (Rawal Pindi).	January to September, 1899.	203	756	1	0·5	10	1·3	0	0	1	0·1	Major J. Maher, R.A.M.C.	There was also a case of enteric fever in a man inoculated in 1897.
Somerset Regiment (Rawal Pindi and Upper Topa).	January to September, 1899.	233	727	3	2·1	13	2·3	0	0	2	0·5	Major Maher, R.A.M.C. (Rawal Pindi). Major Zimmermann, R.A.M.C. (Upper Topa).	66 men who had previous entries for enteric fever have been deducted from the number of uninoculated.
				2		4		0	0	2			
3rd Batt. Rifle Brigade (Rawal Pindi).	January to September, 1899.	205	693	0	0	15	2·2	0	0	2	0·3	Major Maher, R.A.M.C.	42 men who had previous entries for enteric fever have here been deducted from numbers of uninoculated.
11th Hussars (Meerut and Chakrata).	January to September, 1899.	234	357	2	1·3	10	2·8	2	1·3	4	1·1	Major S. J. Rennie, R.A.M.C. (Meerut). Colonel Dempsey, R.A.M.C. (Chakrata).	—
				1		*6*		1		0			
South Wales Borderers (Meerut and Chakrata).	January to September, 1899.	41	1069	0	—	1	1·9	0	—	0	0·3	Major S. J. Rennie, R.A.M.C. (Meerut). Colonel Dempsey, (Chakrata).	—
				3		19		0	—	3			
3rd Hussars (Lucknow).	February to November, 1899.	303	221	4+5	1·3	16	5·7	—	—	—	—	Major S. Macdonald, R.A.M.C. (Lucknow).	Four men who had previously suffered from enteric fever have been deducted from the number of uninoculated. The cases among the inoculated include five cases (two fatal) which were admitted into hospital within 19 days of inoculation.
Scottish Rifles (Lucknow and Ranikhet).	February to November, 1899.	177	591	2	1·1	10	2·3	—	—	—	—	Major S. Macdonald, R.A.M.C. (Lucknow). Lieutenant-Colonel P. Ellis, R.A.M.C. (Ranikhet).	30 men who had previously suffered from enteric fever are excluded from numbers of uninoculated.
		31	71	0		4		—	—	—	—		
Royal Scots (Poona).	January to November, 1899.	172	Say 850	0	0	11	1·2	0	0	2	0·2	Lt.-Col. Blennerhassett, R.A.M.C. Lieutenant H. Herrick, R.A.M.C.	Number of uninoculated in this regiment has not been communicated.
Totals* ...	—	2835	8460	27	0·95	213	2·5	5	0·2	23	0·34	—	—

* The totals for the number of men under observation are arrived at by excluding the first and the penultimate rows of figures. This first row of figures is excluded inasmuch as it is included in the figures of the second row, the penultimate one because it is included in the figures in the previous row. The totals for the number of cases are arrived at by excluding from consideration the figures printed in italics. These represent cases which were incubating typhoid fever at the time of inoculation. The percentages of deaths are calculated not upon the whole number of inoculated and uninoculated but on the numbers of these regarding whom the necessary information as to the issue of the attacks is available.

case of officers no accurate statistical materials are available, as the conditions under which individual officers live differ very considerably. From India, up to the present, among a number of inoculated officers who, counting only the subalterns, must now amount to several hundreds, there have, so far as I have been able to ascertain, been only five cases of enteric fever. Those that have come to my knowledge include two cases in the subalterns of the South Wales Borderers (of whom six were inoculated), and one in the subalterns of the Queen's Regiment in Rawal Pindi (of whom 10 were inoculated). A further case occurred in a subaltern at Quetta, and the fifth case occurred in a subaltern of the Royal Army Medical Corps at Kirki. All these are reported to have been very mild cases. In the 2nd Gordon Highlanders, while no cases of enteric fever occurred among the inoculated subalterns, who must have numbered, so far as my recollection goes, some 10 or 12, two cases, both fatal, are reported as having occurred among uninoculated subalterns.[4]

In conclusion, it may be permissible to refer to the fact that

[4] In connexion with the question of the results of the inoculations done among officers in India, reference may be made to a batch of 22 officers inoculated by Major Firth, R.A.M.C., on the troopship *Dilwara* in October, 1897. It appears from inquiries which were instituted by

my attention has been called from several different quarters to the possibility that the anti-typhoid inoculation may confer a certain protection against malarial fever. In the case of one particular regiment I have been furnished by the commanding officer with lists personally prepared by the company officers giving with respect to each inoculated man particulars as to whether he had suffered from "fever and ague" (*a*) before inoculation; and (*b*) after inoculation. These lists, compiled six months after the date of inoculation, show that of 121 men who had previously suffered from "fever and ague" 111 declared themselves to have been quite free since, the remaining 20 declaring themselves to have been practically free. Only two men who had not previously suffered from "fever and ague" declared themselves to have suffered slightly since. In view of these statements the question as to whether any protection against malarial fevers is in reality afforded by an injection of a dead typhoid culture may, in spite of the *à priori* improbability of such being the case, perhaps be deserving of attention.

Netley.

PLAGUE IN RELATION TO SINGAPORE.

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THE following remarks on the experiences of Singapore during the past six years may be not without interest as illustrating to a certain extent some points in the nature of plague as regards the facility or otherwise of its transmission by sea.

The geographical position of Singapore, between India and the West generally on one side and China and the Far East on the other, has given the place the position which it holds as a very large centre of trade. Besides merchandise Singapore receives from China for employment locally and for transmission to Java, to Sumatra, to the States of the Malay Peninsular, and to other places immense numbers of Chinese immigrants. It also receives immigrants from India, though in less numbers, as the larger proportion of these disembark at Penang. It is manifest, therefore, that Singapore is markedly exposed to any danger which may exist as regards transmission of plague by sea when that disease is prevalent in the countries from which these immigrants come.

The quarantine regulations at Singapore have now been for many years assimilated as nearly as possible to those of the port of London, and they may be described shortly as consisting mainly in the principles of inspection, isolation, and disinfection. The system, however, differs from that of England in that, as it would be quite impossible to trace immigrants after landing, they are, after removal from their ships, detained under observation at the quarantine station, where there is accommodation for nearly 2000 persons, until the period of incubation since the last risk of contracting infection is passed, unless such period has already been passed on board, the ship in the meantime, after disinfection if necessary, being allowed *pratique*. These regulations have been found to work very satisfactorily and with the least possible delay to trade.

In 1894 plague was prevalent in Hong-Kong from May to September and it was found necessary to stop immigration from Hong-Kong from June 19th to Sept. 21st, before and after which date it was allowed as usual, and thus it went on in May and June while plague was bad for about six weeks. In that year 72,289 immigrants were inspected on account of plague. On June 14th in an undoubted case of plague the patient was landed from the steamship *Pakshan*. The sufferer was a Chinese fireman who had fever, delirium, and inguinal buboes. He was landed at the quarantine island and after a long and serious illness he recovered. No attempt had been made to isolate him from the other firemen with whom he had freely communicated. The crew and immigrant passengers were kept under observation for nine days and no other case occurred. In 1895 plague prevailed, but not to a great extent, in Macao, Swatow, and Hainan. In that year 196,635 passengers were inspected on account of plague, but no case was detected. In 1896 there was plague in Hong-Kong from February until August, in Hainan from April until September, and on the southern coast of China from June until September. In this year 145,814 passengers were inspected, and on March 5th one case of plague was found on the steamship *Wingsang*, from Hong-Kong, the patient being a coolie passenger; he died on the next day. No attempt at isolation had been made, but no further cases occurred among the passengers while under observation. During that year five doubtful or suspicious-looking patients were landed from various ships. In 1897 there was plague in Hong-Kong, but not to an epidemic extent, very few cases occurring from May to the end of the year, in Amoy from June to October, and in Swatow from April to November—immigration from these two places being prohibited for a certain period of the year. In this year, also, plague was prevalent in Bombay and Western India from March onwards. During the year 115,542 passengers were inspected, and one case strongly resembling plague was found, which ended in recovery after three weeks' illness. A considerable number of "doubtful" patients were landed and treated in isolation during the year. In 1898 Hong-Kong was proclaimed infected from March to August, but immigration continued. Calcutta was declared infected from May to October, and the western coast of India throughout the year. During the year 144,686 passengers were inspected and three cases of plague were found—two Chinese immigrants on the *Keong Wai* and one, an Indian soldier from Hong-Kong, on the *Lightning*. The two Chinese had fever and delirium, and one had a submaxillary bubo and the other an inguinal bubo. Agar-agar tubes inoculated from the blood of these men in one case failed and in the other it yielded an almost pure cultivation of the plague bacillus. Both men died within 24 hours. The Indian soldier, in whose case, also, the disease was verified by cultivation from a deep puncture into an inguinal bubo, died in three days from pneumonia. Three "doubtful" patients were treated in isolation this year and all recovered. No attempts at isolation had been made of the three plague cases, but no other cases occurred during nine days' observation among the other immigrants. In 1899 Hong-Kong was proclaimed infected from March 15th to Oct. 15th and the southern coast of China from June to September, Calcutta was declared infected in February and still remains so, and the proclamation against Western India has remained in force. It was found necessary to prohibit immigration from Hong-Kong, Swatow, and Amoy from June until October. In this year up to date 139,158 immigrant passengers have been inspected and 10 cases of plague have been found, as noted in the following table:—

No.	Ship.	From.	Sex of patient.	Date of admission to Quarantine Hospital.	Result.
1	Kutsang.	Hong-Kong.	M.	May 8th, 1899.	Died May 9th, 1899.
2	"	"	"	"	Died May 10th, 1899.
3	"	"	"	"	"
4	Marquis Bacquehem.	"	"	May 16th, 1899.	Died May 18th, 1899.
5	On Sang.	"	F.	May 19th, 1899.	Recovered, discharged July 1st, 1899.
6	"	"	M.	May 24th, 1899.	Died May 25th, 1899.
7	"	"	"	May 25th, 1899.	Recovered, discharged July 1st, 1899.
8	Bisagno.	"	F.	May 27th, 1899.	Died May 29th, 1899.
9	Kohinur.	"	M.	June 5th, 1899.	Dead when admitted.
10	Hyson.	"	F.	June 7th, 1899.	Died June 9th, 1899.

REMARKS.

Nos. 1, 2, and 3 all had fever and delirium; No. 1 had a large axillary bubo; No. 2 had an inguinal bubo: in No. 3 no bubo was discoverable. Agar-agar tubes from the blood of No. 2 and No. 3 (the latter from a vein in the neck after death) gave growths of plague bacillus. There had been three deaths on board the *Kutsang* during the voyage from suspected

Major Firth, and which were supplemented by some further inquiries made by me, that none of these officers have suffered from enteric fever, whereas two uninoculated officers who came out in the same troopship have succumbed to that disease.

plague—two with fever and bubo, and one with no bubo. The three men who died on board, with the three men who died in Singapore, and another man who remained healthy, seven men in all, were all members of one family, from a village near Swatow. There was no, or very little, attempt at isolation. There were 774 immigrant passengers on board, but no further case.

No. 4 was a case of inguinal bubo, the cultivation from the blood being characteristic. There was no attempt at isolation. There were 609 immigrants on board, but no other cases.

Nos. 5, 6, and 7.—As regards these cases see text of the paper. Cultivations from No. 5 and No. 7 gave doubtful results, but there was really no doubt as to the diagnosis. A cultivation from blood from a vein in the neck after the death of No. 6 gave characteristic growth and bacilli. There was no isolation. There were 484 immigrants on board, but no other cases during nine days' observation from May 24th. Two deaths had occurred on the voyage down from "high fever."

No. 8.—One death, of a child, said to be from acute bronchitis, had occurred on the voyage down; this patient was the mother of the child. Fever, afterwards delirium, inflamed gland at the elbow, and cellulitis of the arm were noted. A cultivation from blood gave characteristic results. The patient had been isolated for two days on board. There were 874 passengers on board, but no other cases.

No. 9.—Died on board prior to landing. There was enlarged femoral gland with bloody exudation around. A cultivation made from a scraping from the centre of the gland gave characteristic results. There had been no isolation. There were 782 immigrants, but no other case.

No. 10.—In this case there were fever, dazed appearance, femoral bubo, and congestion of the lungs. A cultivation from the blood gave characteristic results. There had been a doubtful short isolation on board. There were 812 immigrants, but no other cases.

In the eight out of the above 10 cases which ended fatally (with the exception of Case No. 1, in which the nature of the disease was so absolutely certain that no attempt at verification was considered necessary), cultivation growths showed characteristic plague bacilli. In the two cases which ended in recovery, though the growths which resulted from cultivation from the blood appeared to be characteristic, on microscopical examination the usual characters of plague bacilli could not with certainty be identified, the appearances rather resembling those of diplococci, but there is no reasonable doubt as to the correctness of the diagnosis of the disease in both cases. In this bacteriological work I have received much kind help from Dr. W. R. C. Middleton and Dr. J. A. R. Glennie, medical officers to the municipality. During this year five "doubtful" cases were treated in isolation, all ending in recovery.

In each year numerous cases of fever, detected on inspection of immigrants, were detained for a few days under observation. Over 200 of such cases were detained in 1898 and there have been over 300 of such cases up to date this year. None of these cases are included among those which I have called "doubtful" cases of plague; these latter I shall refer to later.

The voyage from Hong-Kong to Singapore takes from five to seven days, that from Swatow and Amoy to Singapore a day or two longer.

In none of the cases of plague that were detected, except in two or three in 1899, as noted in the table above, in which the patients had been isolated on board for two or three days, had any attempt at isolation of patients been made until the cases were detected in Singapore. In every case, after isolation of the sick at Singapore, the remaining immigrants were kept under observation with frequent inspection for nine days and on no occasion, except that of the *On Sang* to be referred to hereafter, did any further cases of disease occur. During the whole six years no attempt had been made to disinfect cargo or passengers' baggage, except that the clothing and baggage of the sick were of course dealt with.

As regards the *On Sang* the first patient whose case was detected on arrival was a woman who had fever, a certain amount of cerebral disturbance, and a large femoral bubo, consisting of more than one inflamed gland, very tender, and with surrounding exudation. She was, of course, isolated on arrival, and a man, a relation of hers, chose to be isolated with her to help in looking after her. In four days after this a man among the rest of the passengers was found to be very ill with fever, and examination revealed a comparatively small, recent, and very tender inguinal swelling and a large popliteal glandular swelling with the skin over it of a purplish colour and apparently commencing to slough. He died on the next day and plague was verified after death. The unusual situation of the bubo, in the popliteal space, may account for this patient's having been overlooked before, or he may have evaded inspection in some way until he became too ill; he turned out to be the husband of the sick woman. On the following day the attendant on the woman, who was also a relative, was found to have fever and a characteristic inguinal bubo, and there is no doubt that this was a mild case of plague though bacteriological evidence was not conclusive. These three people came from the same village and there is no doubt, I think, that they brought the infection with them in some way. The husband mixed with the other immigrants for two or three days after his arrival here and no doubt he had been ill for some days before, but he did not spread infection.

It will be observed that in each year except 1894 and 1895 a certain number—in some years a good many—of what I have called "doubtful" cases have been detected among immigrants and treated in isolation. All these cases presented symptoms of fever, sometimes rather high fever, and had buboes without any obvious cause for them. The buboes were, for the most part, femoral or inguinal. They were all tender, and in all cases they presented the appearance of an enlarged gland or glands, fixed, with exudation around them, and the skin over them in a few cases slightly discoloured. All these cases recovered without the buboes going on to suppuration, and from none of them in which trial was made could cultivations of the plague bacillus be obtained, some inoculations of tubes proving sterile, others resulting in the growth of a coccus.

I do not for a moment pretend that individual immigrants may not on occasions have evaded inspection; indeed, it would be wonderful were it not so, or even that some doubtful cases may have escaped notice, but I am confident that no case of plague has been overlooked. So far as I know there has been during these six years no case of plague in Singapore, though we have had false alarms on several occasions. Dr. Middleton, the municipal health officer, agrees with me as to this point. I am confident that had cases occurred, even in very moderate numbers, we should have found them out as the occurrence of cases in Penang was discovered.

The following points are, I think, worthy of notice in connexion with the above particulars. 1. The very small number of plague cases detected among immigrants, at least up to 1899, notwithstanding the prevalence of the disease in China. This is, no doubt, in some measure to be accounted for by the fact that at most, if not all, of the Chinese ports coolies were medically inspected before departure. 2. The fact that (except as regards the cases from the *On Sang*, which are explained above) although, as I have stated, no attempts, except in one or two instances in 1899, at isolation of the sick on the voyage were made, still in no single instance during the six years has the disease spread among immigrants who have had cases of plague mixed up with them for several days. 3. The question as to whether the disease may not be capable of modification when a sufferer is removed from the infected environment. It has long been thought, though some instances of late years seem against it, that plague cannot live within a certain distance of the equator—that it is not a disease of the central tropics. A late limited outbreak of the disease in Penang, four degrees north of Singapore, which is itself less than one and a half degrees north of the line, certainly shows that cases can occur in that latitude; but there is no doubt that the germ did not propagate well in that outbreak or it would have been much more severe than it was, and it still remains to be seen if there will be any recrudescence. Again, I believe that the disease has travelled further south in India than has ever been known before, but though there were some cases in Madras it did not gain any footing there. As regards Ceylon, the southern end of which is in a latitude very little north of that of Penang, I believe that in ships coming there from Bombay and the upper parts of the west coast of India the conditions have been very similar to those found here—viz., very few cases have been detected, or have occurred, on board—and that in none of these has the disease spread. With regard to the cultures it was found that about eight days was the limit of their life. Taking into consideration the fact that with the exception of the 1894 case, which was a bad one, all the cases which had the disease badly and in which the bacilli could be with certainty identified speedily ended in death; that the few cases which were not so severe, but as to the nature of which there was no reasonable doubt, could not be bacteriologically identified with certainty and ended in recovery; and that the numerous doubtful cases which presented symptoms, not perhaps very severe, closely resembling those of plague, also could not be verified and all ended in recovery, it seems to me that the disease is susceptible of modification or that it can abort.

From one case we can never tell with certainty what may happen in the future, but the history of the experiences of Singapore up to the present date seems to indicate (1) that plague is not readily transmissible by sea far south of localities in which it is epidemic or endemic, and that should it in later years spread more towards the equator it will do so probably by slow extension overland, the germ becoming gradually acclimatised; (2) that when removed from endemic environment the disease is not at all readily communicable from person to person; (3) that the danger of conveyance of infection by cargo and baggage for any distance by sea, at all events below what has been thought its boundary of latitude, is practically nil; and (4)—but this indication I submit with a certain amount of diffidence—that, unless a patient has received a very strong dose of infection or unless the morbid process in the body has reached a certain point prior to embarkation, when a patient leaves the infected environment and travels by sea towards the central tropical zone the disease has a tendency to abort. The bacilli either disappear in some way or become modified and inert, leaving the patient to gradually lose the fever which has been deprived of its specific exciting cause and to recover from the glandular affection, which having also lost the specific cause of its access and increase, tends to resolve in the same way as after ordinary inflammation.

Singapore.

CASE OF PERFORATED GASTRIC ULCER ON THE POSTERIOR SURFACE OF THE STOMACH; OPERATION; RECOVERY.

BY SAMUEL DAVEY, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H.;

WITH REMARKS

BY FREDERIC EVE, F.R.C.S. ENG.,

SURGEON TO THE LONDON HOSPITAL.

ON Nov. 6th, 1899, I was called about 1 P.M. to see a married woman, aged 38 years, whom I had attended on two previous occasions—viz., in April and June of 1899—with symptoms which undoubtedly pointed to the presence of a gastric ulcer. On my arrival at about 1.30 P.M. I found the patient in an extremely collapsed condition and elicited from her (she was only able to utter words in monosyllables) the following history. Since she had seen me in June she had been fairly well, with the exception of occasional attacks of "indigestion," until that morning, when about 11 o'clock she was seized with an acute and sudden pain in her "stomach," which she localised over the whole of the epigastric region, but stated that the pain was much worse on the left side of the abdomen, the area indicated being of about the size of one's hand and immediately over the cardiac end of the stomach. The patient was lying on the couch with the legs flexed on the abdomen; the abdominal muscles were extremely rigid and the slightest attempt at manipulation of the abdomen caused severe pain. The extremities and the tip of the nose were quite cold and the pulse was quick and small. She had vomited twice, but blood had not been noticed. Unfortunately, the vomit had been thrown away. At three o'clock I saw her again and found her much in the same condition; there had been no more vomiting, but the state of collapse was just as great. I now had her carried into her bedroom, the frequent application of external heat which I had ordered on my first visit being continued, and I also injected hypodermically a quarter of a grain of acetate of morphia. Mr. F. Eve, to whom I had previously wired, arrived at about 6.45 P.M. and saw the patient with me. Meanwhile a marvellous change had occurred in her condition; the pain had quite disappeared, the legs were extended, and the rigidity of the abdominal muscles had to a very great extent subsided. With the exception of some coldness of the nasal tip all the symptoms of collapse had passed away, in fact, so far had the patient recovered that she expressed herself as being perfectly comfortable. Since my visit at three o'clock the temperature had risen to 102° F. and manipulation of the abdomen could be carried out without giving rise to pain. The possibilities of the case were carefully explained to the friends and the patient and an exploratory operation was strongly advised; to this procedure the friends and the patient readily agreed.

The patient being under chloroform and strict antiseptic precautions being observed Mr. Eve opened the abdomen in the middle line, the incision being about five inches in length and commencing about two inches below the ensiform process. When the peritoneal cavity was freely opened a very small amount of turbid peritoneal fluid welled into the wound. The anterior surface of the stomach now presented itself and although a careful search was made no perforation could be detected. On tearing through the great omentum a few recent flakes of lymph were observed adhering to the posterior surface of the stomach, near the lesser curvature. Although careful inspection was again made no perforation could be found. Mr. Eve now divided the left rectus muscle horizontally, parallel with the costal margin, in order that a better view of the stomach might be obtained. The stomach was gently drawn out of the abdomen and turned upwards when a perforation on the posterior surface close to the lesser curvature and attachment of the lesser omentum was seen. The gastric juice welled slowly from an opening just large enough to admit an ordinary probe, and around the orifice was a disc-shaped induration of the stomach. The perforation and adjacent area were stitched with about eight Lembert's sutures so as to cause an infolding of the wall of the stomach at this part. All visible flakes of lymph were sponged away and the abdominal cavity was thoroughly washed out with boiled water. A Keith's tube was inserted in the lesser cavity of the peritoneum and the wound was closed in the usual way.

There is nothing special to report in the after-history of the case. The temperature fell to normal by midnight of the day of the operation. The Keith's tube was removed on the fourth day and the stitches on the tenth; the abdominal wound healed throughout by first intention. On Dec. 4th, 1899, a month after the operation, the patient was up and able to walk slowly from one room to another.

Remarks by Mr. EVE.—The most noteworthy feature of this case was the remarkable manner in which the symptoms of perforation had passed off when I saw the patient, although she had only had a quarter of a grain of morphia four hours previously. She did not appear ill, had no pain, and no tenderness could be elicited even on applying firm pressure over the epigastrium. The points which in our opinion justified an operation were the previous definite history of ulcer of the stomach, the very typical symptoms of perforation observed by Mr. Davey, the presence of a temperature of 102°, together with slight rigidity of the abdominal muscles, and the absence of any lesion of the thorax or elsewhere to explain the temperature and previous symptoms. My hands were very much strengthened by Mr. Davey's very firm conviction that perforation had occurred.

When asked if I would postpone operating until the following morning and see the patient again then, I declined to do so on the ground that if the perforation existed the chances of recovery would be greatly discounted by the delay. The perforation was only found after minute examination. This was due to the small size and the very slight amount of fluid oozing from it. Its site was determined by a well-marked induration of the stomach wall around it and the presence of a few patches of lymph in its neighbourhood. Although the opening was situated on the posterior wall close to the lesser curvature and about from one and a half to two inches from the cardiac orifice there was no difficulty in exposing it or inserting the sutures. No free gas existed in the abdominal cavity. When present I think it is mainly the result of decomposition. Cases of peritonitis due to gastric ulcer are recorded in which the abdomen was full of gas although no perforation existed.

HEALTH OF PLYMOUTH.—At the meeting of the Plymouth Borough Council held on Jan. 8th the medical officer of health (Mr. F. M. Williams) stated that the death-rate for 1899 was at the rate of 21 per 1000, showing a slight increase over that for 1898, an increase which was principally owing to a heavy mortality from infantile diarrhœa during July and August. Mr. Williams also alluded to the present high death-rate in Plymouth, which, he said, was largely caused by diseases of the respiratory organs, and he expressed a hope that the council would endeavour to abate the crowding that existed and provide more air spaces and better dwellings.

A NOTE ON SOME FURTHER EXPERIENCE OF OPERATIONS UNDER LOCAL ANALGESIA PRODUCED BY EUCAINE β.

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AT the beginning of last year in a "Clinical Lecture and Demonstration" delivered at University College Hospital[1] I drew attention to some of the leading features of the method of local analgesia which has of late been practised in many parts of the world. Since then I have given the procedure a fairly extended trial and on the basis of all the cases treated in this way by myself during the year 1899 I venture to offer some further remarks upon the subject.

In the first place, it may be stated that all the patients enumerated below, except one who was delirious, elected after due explanation to have the operation performed under local analgesia. Any who objected decidedly were not urged to have it. A good many expressed a strong desire for it either because they had a dread of general anæsthesia from previous experience or for other reasons. I believe that I am correct in stating that not one of those who were operated on under local analgesia alone regretted it. And it may further be stated that several who had had a previous experience of chloroform or ether and for subsequent operations selected eucaine β, expressed themselves as more than pleased with their choice. Some of these latter had, for instance, had one radical cure for hernia done under general anæsthesia and the other on the opposite side under local analgesia, other conditions being equal.

The first point which comes out of a study of our series is the fact that no ill-effect has followed the use of the normal saline solution with 1 in 1000 of eucaine β added to it which has been employed for local analgesia. Not only have no toxic troubles arisen, even when five or six ounces of the solution were used, but the primary union of the wounds has not been in the least interfered with. The only thing which I have noticed as possibly a specific effect of the drug was free sweating in several cases and pallor in a few. But this might have been due to other causes, as also that a very few of the patients vomited during the operation, and I think it was. In long operations I have sometimes used as much as six ounces of the solution and certainly without any ill-effect. This is only what one would expect from the harmlessness of even larger quantities given to animals. But if it is quite clear that there is little, if any, immediate or subsequent ill-effect from local analgesia produced in this way it is equally plain that there are certain limitations to its use. Children, for instance, appear to be unsuitable subjects for this procedure. The mere sight of the surgical preparations for operation frightens them and their unstable emotional condition is upset by the slightest pain. Very timid adults for the same reason are also better dealt with by general anæsthesia. If the part to be operated on is acutely inflamed I have found it very difficult, if not impossible, to render it quite insensible to pain, although in one case of typhlitis and general peritonitis I find it noted that from beginning to end of the operation there was no trace of pain, though the patient showed no evidence of blunted feeling otherwise. Again, it must be remembered that this procedure only causes *local analgesia* and in many operations it is next to impossible to render insensible all the structures which may be affected by the manipulations of our operation. For this reason when the intestine is being resected it is necessary to avoid all drag upon the mesentery which is beyond the reach of the injection, otherwise the patients state that they have a feeling as if the abdomen were being "pressed upon" or they may say that there is griping. In one case of posterior gastro-enterostomy, for instance, which was on the whole borne by a delicate woman extremely well the necessary lifting out the stomach for diagnosis produced this feeling and even vomiting. When the organ was allowed to slip back the rest of the operation was completed without any pain at all and the patient made an excellent recovery. Again, in operating for the radical cure of inguinal hernia, of which I have had many cases, I have noticed that if the cord is much dragged upon the strain is productive of great discomfort, but that if it is fully injected as high up as possible and separated from the sac without dragging no pain is complained of. This also applies to the omentum and sac and I have often asked the patients to note particularly when I was ligaturing these structures and cutting them off, and they have told me that they felt nothing. The same was seen well in three cases in which I have recently operated for the removal of considerable thyroid adenomata of the size of an orange. The incision, a large one, and the subsequent dissection were painless, but on drawing out the tumour to get at the last deep attachments the patients stated that there was a "pressing" sensation in the neck. It was not severe, but was worth noting. In one other similar case of thyroid disease where there was a good deal of bleeding, and where it was necessary to hurry, I gave chloroform for the last part of the operation.

There is another drawback to this method which deserves notice if only to show that it is a trifling one. When the fluid is first injected the result is to produce a distension for a time of the areolar spaces, so that an appearance of artificial œdema is seen. This undoubtedly makes the first dissection less clear for the moment. This condition does not last long as the fluid trickles out of the wound and I have come to disregard it altogether. But to the beginner it is disconcerting to some extent. Another point, too, deserves notice in reference to the actual dissection. If this is carried out by *rapid* cuts or snips with scissors the moment of division of small vessels is felt as a twinge, whereas if the cuts are made more deliberately with knife and scissors nothing is felt as a rule. All these facts tend to diminish the rapidity of operation somewhat, which is a drawback from the surgeon's point of view. But this is compensated for to the patient by the absence of sickness after the operation and the fact that he can enjoy food in many cases at once, indeed many have enjoyed their cup of tea during the operation. The cases which appear to be most suitable for this procedure are those in which there is considerable danger of lung complications following the use of chloroform or ether. In intestinal obstruction, for instance, in weak or elderly persons this is peculiarly the case. They have often suffered for days from stercoraceous vomiting and have been recumbent and will have to remain so. In such cases no one can deny the danger of keeping them for a long time under the influence of general anæsthesia, especially as they will often be sick after recovering from the anæsthesia and consequently cannot be fed or stimulated by the stomach. In such cases the local analgesia answers admirably, and I have no hesitation in urging these patients to it if they are not strongly opposed. Again, a colotomy or resection of gut under these conditions is a typical case in point and such patients will thank the surgeon afterwards for having spared them the use of chloroform. Quite recently I have done a colotomy on a lady in the country who dreaded *general* anæsthesia. Under eucaine β she felt, she said, practically nothing of my manipulations from the first cut to the last stitch and was very grateful for the local analgesia, as she had experienced the unpleasant effects of the general anæsthetics on several occasions in former years. Again, in cases of empyema, where it is often questionable whether chloroform or ether will be safe, I have found local analgesia very satisfactory. But here it must be remembered that in the deeper structures hyperæsthesia will be present owing to the inflamed state of the pleura and costal periosteum. It is necessary then to be very careful in injecting very fully the whole area of the deeper structures to be dealt with. And even so, perhaps a little pain will be felt as they are divided. But this is a small price to pay for the avoidance of the ill-effects of chloroform or ether in such cases. In two cases now in my wards operated on for empyema on phthisical patients this is well illustrated and the patients if asked will give a very good account of the procedure. In one other I had to complete the operation under chloroform as a piece of rib had to be excised.

But there is no doubt that the method requires considerable practice on the part of the surgeon before he can obtain the best results. This I can vouch for after carefully working at it for more than a year and a half, during which a considerable variety of cases have been treated by it. It is

[1] THE LANCET, Feb. 4th, 1899, p. 282.

necessary to have, in the first place, a good syringe easily sterilised and good and particularly fine needles. The proper solution must be warm when used and must be fully distributed over the area to be dealt with. Five minutes or so after its introduction the tissues are ready for operation and in about 20 minutes they will require fresh injection. Deliberate dissection and handling must be cultivated and all dragging and tearing as far as possible be avoided. The operating table must be made as comfortable as possible for the patients, who are fatigued and sore if placed upon a hard surface and required to remain motionless for long. Some kind of screen between them and the operator is desirable. I usually put a small cradle over the head and over this a towel. If there is no special reason against it these patients will be cheered and strengthened by a cup of tea or some stimulant before and during the operation. In some cases of excitable patients a small preliminary hypodermic dose of morphia has seemed to be of benefit.

All these points, and doubtless many others, require to be learned step by step and each case teaches something which will perhaps be useful in the next. At first the surgeon suffers from the feeling that he may be causing pain to the patient, and this is a certain check to his manipulations. There is something "uncanny" in making a dissection on an individual who is perfectly conscious and perhaps talking to you at the time, and it is hard to realise that he is not suffering and consequently the surgeon may hesitate. But when a few cases have been operated on in this way and we are sure of our position this hesitation wears off and we proceed more rapidly, to the patient's great benefit, of course. Some of the cases, I must say for myself, have filled me with amazement. The patients have appeared perfectly indifferent and very often in the best of spirits all the time. Even those who feel a little pinch or drag here or there make light of it as a rule. I heard one patient humming a tune to himself during a radical cure of hernia which I was doing.

The cases in which during the year 1899 this mode of operating has been selected for some of my patients for one reason or another arrange themselves in the following groups :—

Radical cure of hernia	15	For varices on legs	5
Herniotomy for strangulation	1	Colotomy	4
Resection of intestine for gangrene	1	Removal of scar on the nose ...	1
Gastro-enterostomy	1	Rectal cases	2
Abdominal section for epityphlitis	2	Sublingual exostoses	1
For perforated gastric ulcer	1	Salivary fistula	1
For carcinoma of the gall-bladder (exploration)	1	Abscesses opened	2
Removal of goitre	4	Removing of wire	2
Gouging carious bone	1	Wiring patella	2
Empyema	4	Stitching a semilunar cartilage in the knee	1
Varicocele	1	Total	53

Of these there were nine in which I thought it best, either on account of actual pain or extreme nervousness, to give general anæsthesia in the middle of the operation and to finish it under the latter. There were one radical cure of hernia, one perforated gastric ulcer, one goitre, one empyema, one colotomy, two rectal cases, one salivary fistula, and one wiring of the patella. Of these I will only say that I do not think rectal cases suitable for this procedure as a rule, inasmuch as the dragging on the bowel will usually influence parts not to be reached by the solution. Nor do I think that in a case of perforated gastric ulcer the procedure is suitable for the same reason, and besides, the peritoneum is inflamed and the operation is sure to be a long one. The salivary fistula was in connexion with an abscess and therefore unsuitable as the parts to be cut could not be infiltrated. In all the other cases I think I could now with increased experience perform the operation without pain. Selection will always be necessary, but I think that even from this limited number of trials I have learned much in this direction and that local analgesia will always be a useful procedure in certain cases, though it will not for a long time take the place of general anæsthesia. Of course the 53 cases tabulated above form but a small group in proportion to the number of operations done in the course of the year in which I have used general anæsthesia, but as far as they go they are fairly representative.

Harley-street, W.

TETANUS FOLLOWING NEPHROPEXY.

BY THE LATE HENRY THOMPSON, L.R.C.P. LOND., M.R.C.S. ENG.,
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A MARRIED woman, aged 47 years, who for years had suffered from a loose right kidney, came under my care for the purpose of having it fixed to the side. Examination showed an extremely loose right kidney which could with ease be pushed to the left side of the umbilicus. The patient was a spare, intensely neurotic woman and it turned out afterwards that for years she had been suffering from aggravated domestic troubles and had been reduced owing to the sins of others from a condition of great affluence to one of comparatively narrow means. This trouble had preyed upon her mind and together with the kidney trouble had converted her into a chronic invalid. Otherwise her physical condition was fair and a successful result was anticipated.

The operation took place on Nov. 23rd, 1898. Nothing could have been easier or apparently more satisfactory. Special care was taken both with the preparation of the patient and of the instruments, and careful thought and inquiry have failed to discover any flaw in the course of the operation. Not a single vessel required a ligature and the kidney was fixed to the periosteum of the last rib and to the muscles attached to the rib by three silk stitches which had been soaking in carbolic acid solution (1 in 20) for months. For safety's sake, in case of a vessel bleeding after the wound was stitched up, a small drainage-tube was passed down to the kidney and was removed on the second day. The patient apparently went on quite satisfactorily until the ninth day. The wound healed by first intention except just the track of the drainage-tube. The temperature had never risen above 99·6° F. and I considered her to be convalescent. On Dec. 1st she was told some very bad home news which upset her very much; she passed a very restless night and the next day complained for the first time of some pain and twitching in the seat of the wound in the right flank. This pain was intermittent but the hand placed upon the side could distinctly feel a spasmodic contraction which appeared to be quite involuntary. On the 4th the patient complained of some stiffness about the jaw, but the tetanic symptoms never became really severe until the day of her death which took place on the 7th, 14 days after the operation.

I can only call the above case a surgical tragedy. Nowadays under antiseptic or aseptic surgery tetanus has become one of the rarest of sequelæ. During the last 20 years the above is the only case of tetanus that I have had in private practice, and I am sure that in our hospital we do not see a case a year and those that we do see are almost invariably admitted into the hospital with the tetanus already developed. I wish to submit for consideration the following points. 1. Is there such a disease as idiopathic tetanus? or can tetanus be produced only by the bacilli introduced from without or by their toxins? 2. Granted that the bacilli may have been introduced by means of food, green vegetables, &c., can they lie dormant until some sudden accident, operation, or nervous shock sets them free or gives them a suitable soil to develop their evil ways? In my early days tetanus was always described as being of two varieties, traumatic and idiopathic, but since the discovery of its bacillus by Nicolaier in 1885 and the further development of its natural history by Tizzoni, Cattani, Faber, and others, it is now universally held that upon the impregnation of a wound by the club-shaped bacillus tetanus can alone depend. Some cases have been reported where tetanus has followed an apparently simple bruising only, but it is thought that in all such cases an undiscovered wound or abrasion has been the site of the inoculation. Tetanus has been known to follow a simple fracture and a case of that sort has been recorded by Sir George Humphry. In the above and similar cases may it not be possible that the tetanic symptoms may be due to reflex irritation of the motor centres in the spinal cord and brain by the local disturbance, rather than to any influence of the bacilli or their toxins acting through the blood? It is important to remember with reference to the possibility of the occurrence of idiopathic tetanus that the reported cases of this nature have as a rule been milder and have more frequently

recovered than have the traumatic cases; still, if the now prevailing view be correct there must in all supposed idiopathic cases have been some lesion to admit of the entrance of the bacilli, unless we allow that they may be aerially conveyed. The place of entrance may be an ulcer in the mouth, pharynx, or alimentary canal, or in some other undetected part. In horses it is said to be caused by wounds in the gums from eating straw, and cases supposed to be idiopathic have originated in this way. The tetanus bacillus has been found in garden earth, in road-scrapings, in the dust between the boards of the floors of rooms, and in the pus of certain suppurating wounds, and its special habitat seems to be soil impregnated with horse-dung. But in the case I have narrated how could any bacillus from earth or elsewhere have come in contact with the wound? A day or two before the operation the patient ate celery for luncheon. Could some bacilli have been present in the imperfectly cleansed celery and have come in contact with an abrasion in the mouth? Were the antiseptic measures in fault? Special attention was paid to them. The instruments were all thoroughly boiled and due attention was paid to the cleansing of the skin.

The last point that I wish to touch upon is the influence of mental shock upon the production of tetanus. The patient was *apparently* in quite a satisfactory state until she sustained the great mental shock in the afternoon of Dec. 1st. This upset her very much and the symptoms of tetanus developed within a few hours. Here, did the shock produce the tetanus or did it have such a depressing influence upon the patient that the previous phagocytic action was held in abeyance and the bacilli having free play rapidly developed their virulent toxins? Or was it a mere accident that the mental shock preceded the development of the tetanus with which it had nothing to do, when the reason why the tetanic symptoms developed the day after the shock would be because the period of incubation was at an end? I will not enter into any detail as regards treatment except to say that when this case was under treatment the action of tetanus antitoxin was so uncertain that, looking upon the case as a very mild one until the day of death, we did not use it. Latterly, however, I have been so much impressed by cases recently published, that I should certainly press the intra-cerebral injection of antitoxin if I should have the bad luck to have a second case of tetanus.

Hull.

SOME FACTS GATHERED FROM EXPERIENCE RESPECTING MISCIBLE BLACK CARBOLIC DISINFECTING FLUID AND CARBOLIC DISINFECTING POWDER.

THE MEANING, COMPOSITION, MODE OF TAKING SAMPLES AND METHODS OF ANALYSES.

BY FREDERICK W. ALEXANDER, L.R.C.P. EDIN., M.R.C.S., D.P.H. ENG.,

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WITHOUT entering into the germicidal or antiseptic or deodorant properties of "black miscible carbolic disinfecting fluid" which is used largely in solution by more than one sanitary authority for road-watering and gully-flushing, &c., I think it would be useful to the members of the medical profession who also use this disinfecting fluid in many of its various forms to make known some points which have been manifested to me when I have been obtaining analyses upon the same bulk from different analysts, inasmuch as by their varying results it must obviously appear that there is no uniform method of analysis adopted. That the result of analyses should vary even when made by the same analyst is a very serious matter not only for local authorities but also for the individuals supplying the article, as both may be put to enormous expense and great worry should the matter be contested in a court of law.

I would first give from experience a word or two as to the meaning of the term "black miscible carbolic disinfecting fluid." Unless the percentage is mentioned (which should be qualified by the words, "of tar acids and guaranteed commercially or practically free from salting") one may be supplied with any preparation of alkalised gas tar creosote which, unless the component parts and percentage were stated, would not come under the Merchandise Marks Act, 1887. H. Mansfield Robinson, LL.D. Lond., and Cecil H. Cribb, B.Sc. Lond., F.I.C.,[1] state: "The provisions of the Sale of Food and Drugs Acts should be extended to such articles as disinfectants, antiseptics, cosmetics, and articles added to food for culinary purposes or in its preparation. By the Adulteration Acts of Massachusetts disinfectants, antiseptics, and cosmetics are included in the Act, and the necessity for such articles being covered has been shown in several districts by the sale of quantities of carbolic powder which contained no carbolic or cresylic acid. In one case the sale of such worthless powder caused an outbreak of scarlet fever through the failure of the supposed disinfectant."

A miscible black carbolic disinfecting fluid may consist simply of liquid tar oils in which in order to be made miscible or capable of forming an emulsion there would have to be employed resin, an alkali, and a soap. Such a mixture may then be offered to a local authority while containing little or no percentage of tar acids and yet be styled "miscible black carbolic disinfecting fluid," and may turn white upon the addition of water like a fluid which contains a large percentage of tar acids, and in some cases present even a more milky appearance. Fluids of this description could be manufactured, according to the market value of creosote, at from 5*d*. to 6*d*. per gallon, whereas a mixture containing say 35 per cent. of tar acids would entail more careful manufacturing and the price would be necessarily enhanced by the value of the percentage of tar acids. Both of these liquids (more especially if pyridine bases be present) would be very nearly alike to the sight and smell and could only be detected by crucial analysis. "Carbolic" is a name generally applied in commerce to all phenols or acids obtained from coal-tar. When a percentage of tar acids is mentioned it means in the trade total combined percentages consisting mainly of acids such as phenol (true carbolic acid), cresol (cresylic acid), and xylenol. A solution would not contain true carbolic acid alone unless one specified it and at the same time defined the acid as crystallising at definite temperatures by "Lowe's test." True commercial carbolic acid is sold by Lowe's test and generally is of the following three grades: 50° F., 60° F., and 75° F. In passing it may be stated that cresylic acid is said to have an antiseptic power considerably above that of carbolic.

In ordering carbolic disinfecting fluids it is necessary to add the words, "guaranteed commercially or practically free from salting." "Salting" appears to be the *bête noire* of the manufacturers of "black miscible carbolic disinfecting fluids." By "salting" is meant the deposit of crude naphthaline which will occur in cool weather with a black miscible carbolic disinfecting fluid which has been manufactured during a warm period of the year when it is difficult to properly extract the excess of naphthaline, a process which requires great care. When "salting" takes place the liquid becomes thick and will not flow out of the vessel.

Naphthaline is extracted from tar oils by allowing them to cool, freezing when necessary, and subsequently filtering in special machinery. This, of course, removes all except what is naturally soluble in the oil at the lowest temperature to which the oil is subjected. When purified, naphthaline can be used by a specially contrived apparatus in conjunction with ordinary coal gas to enhance the candle power of the light. Naphthaline is also manufactured into tablets and sold in chandlers' shops, &c., to the public under the name of "naphthaline" tablets or "carbon" tablets.

When specifying for the supply of "disinfecting carbolic powder," in order to obtain the full benefit of the disinfectant, not only should the percentages of tar acids be quoted, but the following words should be added, "guaranteed an inert base," by which is meant that the phenols should be mixed with a substance which merely absorbs them and does not enter into chemical combination. As to the method of taking a sample of black miscible carbolic disinfecting fluid for analysis, drawing from a tap at the bottom of the cask is not satisfactory. The following

[1] The Law and Chemistry o Food and Drugs, p. 15.

method of sampling is the "standard" one and is used for all fluids or liquids by "experts" and of course should be used by the trade generally. The barrel or cask should be thoroughly shaken, it should then be laid on its side, the bung be taken out, and the sample be taken by means of an ordinary hollow glass sampling rod, which should be passed through the bunghole to the opposite side of the barrel, thus ensuring a fair average of the whole contents of cask or barrel.

The miscible black carbolic disinfecting fluid, of which samples were taken, was ordered from the manufacturers to contain 35 per cent. of tar acids. Seven analyses were made as follows—one by the analyst of the manufacturers and six by four other analysts. Two analysts analysed two samples each. The following is *in extenso* the result of the manufacturers' analyst: water, 15·5 per cent.; total oils to 270° C., 56 per cent.; phenols, 35 per cent.; pyridine bases, 2 per cent.; specific gravity at 60° F., 1·069; of good appearance and wholly and readily emulsifiable in water. Two of the results obtained by other analysts agreed with those of the analyst of the manufacturers. Without giving in detail the certificates of analysis of the remaining four samples, the phenoloids or tar acids as certified were respectively—28·7 per cent., 24·6 per cent., 23·0 per cent., and 13·7 per cent. In some of the certificates other items were given, but tar acids were specially asked for when sending the samples and I give them as quoted in the results.

The varying of the percentages of tar acids and the wording of the certificates suggest that analysts adopt different methods of analysis. By the kindness of the manufacturers I was present when their analyst made a second and a third examination of the samples from the cask containing the fluid under dispute and by their very kind permission I am allowed to describe the method of testing adopted by them, which is as follows:—

Method of testing 35 per cent. disinfecting fluid.—100 cubic centimetres of the fluid to be tested is placed in a small flask and enough dilute H_2SO_4 (one part H_2SO_4 in three) added to neutralise it. About nine cubic centimetres will be found to be necessary. It is warmed and well shaken, then put into a separator and then, after standing a few minutes, the lower aqueous portion is drawn off. The increase in volume being noted, it is neutralised with dilute caustic soda (of a specific gravity of 1·210) and the volume of the resulting pyridine bases read. Subtract this from the increase in volume and the amount of water (first portion) is obtained. The oily upper portion is then run into a Würtz flask fitted into Liebig's condenser and distilled up to 270° C. To prevent bumping some pieces of marble or limestone are put into the flask before commencing to distil. When all the water is distilled over (which may be noted by the cessation of frothing) the distillation is slackened for a moment to allow of the water being read. This, added to the first portion, gives the total water. The distillation then goes on up to 270° C. and the tar oils come over with the acids in solution. The total distillate is then placed in a small flask and washed with three washes of dilute caustic soda, (1) of a specific gravity of 1·125 (30 cubic centimetres), (2) of a specific gravity of 1·210 (20 cubic centimetres), and (3) of a specific gravity of 1·210 (20 cubic centimetres). The distillate is warmed and well shaken with each wash, then put into a separator, and after standing a few minutes the lower portion being drawn off each time into a graduated cylinder (stoppered) in which it is neutralised by the careful addition of dilute H_2SO_4 and in which the tar acids obtained may be read. A further wash of 20 cubic centimetres dilute caustic soda (1·210) may be given to see if all the tar acids are removed and after this a wash of 15 cubic centimetres of dilute H_2SO_4 is put to the oil, warmed and shaken, separated into a graduated cylinder, neutralised with soda (1·210) and the resulting pyridine bases added to those formerly obtained give the total percentage of pyridine bases in the fluid.

Method of testing disinfecting powder.—50 grammes of the powder are weighed into an ordinary retort and directly distilled into a 100 cubic centimetre graduated measure (or a 50 cubic centimetre measure will do). Care must be taken to apply the heat gradually at first, so as not to crack the retort. First, the water distils off, and secondly, the phenols. The heating is continued as far as possible and the resulting volume of water and phenols are read in the measure. Before finally discontinuing the distillation it is usual to shake the powder in the retort up well and again heat. Then the percentage of phenols in the powder is to the amount read as 10·5 : 10. 10 : 10·5 :: amount of cubic centimetres of phenols read × 2 : percentage of phenols in powder by weight. This is necessary as the specific gravity of phenol is about 1·050. This method is not applicable to a powder in which the phenols are combined with the base, or to a powder having as a base peat or any other substance which can be destructively distilled. To find if the distillate be phenols or neutral oils dissolve in about seven times its own volume of caustic soda (of a specific gravity of 1·125) when, if phenols, they should dissolve.

In forwarding to you this communication I have not the least pretension of posing as an analyst or as one who has a knowledge of the manufacture of tar products. I have merely mentioned facts which have come before me whilst endeavouring to safeguard the public interests as a public servant and I thought that knowledge obtained in such a manner might be of great use, not only to the medical profession, but to the public at large, more especially as it might prevent litigation should there be any dispute in respect of such kinds of disinfectants between those engaged in the care of the public health and those who manufacture carbolic disinfectants or contract for the supply of such articles. I may say, in conclusion, that the investigations which I have recently made have fully convinced me of the necessity of adopting uniform systems of testing such disinfectants as this communication deals with on the part of all public bodies who employ them. Without this we shall be subject to continual trouble and disappointment.

Bow-road, E.

TUBERCLE BACILLI IN MILK, BUTTER, AND MARGARINE.

BY H. E. ANNETT, M.D. VICT., D.P.H.,
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IN the midst of the great movement at present occupying the attention and interest both of the profession and the public—namely, the provision of sanatoria and homes for the phthisical—there is some danger of the fact that tuberculosis is a preventable disease being considerably neglected. The human digestive tract plays an important, but probably the most easily preventable, rôle in infection by tubercle bacilli; a rôle, however, insignificant in comparison to that of the respiratory tract, in tuberculosis of adults, but very important and considerable in the case of young children and infants. In view of the most recent experimental work on the question of the presence of tubercle bacilli in milk, butter, and margarine, an apology for again introducing this subject, on which much has already been written, is deemed unnecessary.

TUBERCLE BACILLI IN MILK.

Numerous bacteriological examinations of milk during the last ten years have proved the presence of tubercle bacilli in a greater or less percentage; for example, in Berlin milk by Obermüller[1] to the extent of 61 per cent., and by Petri,[2] also in Berlin milk, only of 14 per cent.—using the method of inoculation of animals as the test. Also Rabinowitsch and Kempner[3] found that 28 per cent. of 25 samples of Berlin milk contained tubercle bacilli.

In the medical officer of health's report[4] to the Liverpool Health Committee on the question of tubercle bacilli in the milk-supply of Liverpool 2·8 per cent. of the 144 samples collected from sources within the city were proved to be infective by experiments of Professor Sims Woodhead, Professor Boyce, and Professor Delépine, while 29·1 per cent. of 24 samples taken on arrival from parts of Cheshire, Shropshire, &c., at the railway stations were found to be tuberculous. Similarly Professor Delépine[5] reports of the milk-supplies of Liverpool, Manchester, and other parts, 5·55 per cent. of 54 samples collected from town dairies, and 17·6 per cent. of 125 samples of milk from country farms collected at the railway stations proved to be tuberculous. Again, milk collected from 16 Cambridgeshire

[1] Hygienische Rundschau, 1895, No. 19.
[2] Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1898, vol. xiv.
[3] Rabinowitsch and Kempner: Zeitschrift für Hygiene, 1899, p. 137.
[4] Report and Brit. Med. Jour., 1897, vol. ii., p. 162.
[5] Brit. Med. Jour., 1898, vol. ii., p. 917.

dairies, a sample from each, was reported by Kanthack and Sladen[6] to have produced tuberculosis in guinea-pigs on inoculation to the extent of 56·3 per cent. of the milk (nine samples).

Professor Boyce, to whom I am indebted for permission to use his results, has carried on numerous experiments during the last two years for the Health Committee of the Corporation of Liverpool. During the year 1898 84 samples of "town" milk, of which seven (= 8·3 per cent.) proved to be tuberculous on guinea-pig inoculation, and 28 samples of "railway" or "country" milk, of which five (= 17·8 per cent.) were infective, were examined, while during 1899 to the end of June, of 75 samples of "town" and 63 samples of "railway" milk 6·6 per cent. of the former and 17·4 per cent. of the latter proved to be tuberculous. These results indicate the effects of better sanitation in the cowsheds, shippons, and dairy premises in large towns, as compared with country places, enforced by local by-laws ensuring better ventilation, spacing, cleanliness, and regular inspection.

The consideration of the relation between the presence of tubercle bacilli in milk and the extent of the disease in the animal yielding that milk adds greater and more important interest to the question. The use of tuberculin for the detection of tuberculosis in cattle seems to be an almost infallible test. The presence of a small tuberculous lymphatic gland has often proved, post mortem, to be the only lesion occasioning the reaction to tuberculin; indeed, some investigators are so sure of its infallibility that they assert that although no naked-eye lesions may be detected at the usual examination, a careful search will discover deposits in parts generally never looked at—spinal column, joints, and interior of bones, &c.

In 1880 Bollinger[7] by inoculation experiments found the milk of a cow with tuberculosis of the udder to be infective, as also that of another case of tuberculosis without lesion of the udder. May[8] obtained only one positive result with the milk of six "graped" cows, and Stein[9] four positive results from 14 "graped" cows. Bang[10] of Copenhagen has made numerous experiments. The milks from 63 cows with advanced tuberculosis were proved to be tuberculous only in 14 per cent. Hirschberger[11] asserts from his experiments (20 cases with 11 positive results) that milk may be infective when only a small lesion occurs in the lung. Ernst[12] examined 114 samples of milk from 36 tuberculous cows showing no udder lesion and 28·57 per cent. proved to be infective; Smith and Schröder[13] found the milk infective in two cases out of six tuberculous animals with no udder lesion, and Schröder later found the same in two samples of milk from 31 tuberculous cases. Delépine[14] proved the presence of tuberculosis in the milk of two cases out of six which had reacted to tuberculin and showed clinically more or less evidence of the disease. In these two cases the udders showed lesions microscopically. Later he examined the milk of 24 suspicious udders with results shown in his table reproduced:—

Table showing Results of Milk from 24 Cows whose Udders were Suspicious.

Milk from udders—	No. of samples.	Producing tuberculosis.		
		Actual number.	Percentages.	
A. Certainly diseased	10	5 } 6	50·0	} 31·5
B. Probably diseased	9	1 }	11·1	
C. Healthy	5	—	—	—
Total	24	6	—	—

Rabinowitsch and Kempner's[15] researches are most complete. 15 cows were tested with tuberculin giving a distinct reaction. Three months later samples of their milk were tested and that of 10 of them (66·6 per cent.) proved to be tuberculous. At the time the milk was taken, and previously, clinical examinations of the animals were made and in cases of death post-mortem examinations. The results were as follows: (*a*) Only one cow showed distinct tuberculous udder lesions clinically (besides lung symptoms); her milk (two samples) proved to be infective. (*b*) One cow showed, microscopically only, tuberculosis of the udder (clinically and post mortem advanced disease of organs); the milk was found to be tuberculous. (*c*) Three cows showed advanced general tuberculosis, the udder histologically exhibiting chronic interstitial inflammation without tuberculous deposits; the milk of all three was found to be tuberculous. (*d*) One cow with lung lesions and some emaciation; the milk was found to be tuberculous. (*e*) One cow showed symptoms of commencing lung lesions; the milk proved to be tuberculous. (*f*) One cow on first examination was suspected; on two subsequent examinations the animal seemed normal; the milk was found to be tuberculous. (*g*) Two animals showed no symptoms on three examinations extending over a period of five months, but their milk proved to be tuberculous. (*h*) Four others, three showing clinical signs, and one none, gave non-tuberculous milk (four, two, two, and two samples respectively). (*i*) In one other case, exhibiting post mortem acute and chronic lesions, the inoculation experiments on guinea-pigs failed from the presence of a pathogenic coccus. Therefore, omitting the last case, 10 out of 14 animals (71·4 per cent.), all of which had reacted to tuberculin, yielded tuberculous milk. More experimental work is evidently desirable, but one must clearly infer from these experiments that any animal which reacts to tuberculin indicating lesions which, may be, cannot, even by repeated clinical examination, be detected, is capable of giving milk, which will produce tuberculosis in the guinea-pig on inoculation.

In contrast to Rabinowitsch's results Ostertag[16] concludes, from experiments with the milk of 50 animals which reacted to tuberculin, but showed clinically no sign of disease, that the milk of such animals is absolutely non-infectious for guinea-pigs.

TUBERCLE BACILLI IN BUTTER.

It has been proved by many authors that butter made from tuberculous milk was also infective, and by Heim[17] and Gasperini[18] that tubercle bacilli live and keep their virulence in butter for a period of even 12 days.

Brusaferro[19] found virulent tubercle bacilli in one sample out of nine; Roth[20] in two samples out of 20; Schuchardt[21] only in one out of 42 samples; and Gröning[22] in eight (47 per cent.) out of 17 samples.

From the results of experiments by Rabinowitsch[23] it is now doubtful whether the animals in the above-mentioned experiments (references 19 to 22) were infected with Koch's bacillus tuberculosis. She examined 30 samples of butter from Berlin and 50 from Philadelphia and *in no single case* found bacilli "which by means of culture and the pathological results of guinea-pig inoculations could be pronounced as identical with Koch's bacillus tuberculosis," but "23 samples (28·7 per cent.) produced changes which, both macro- and micro-scopically, resembled those of tuberculosis, but which by more extensive and exact examination could be distinguished with ease." Other authors have described similar pseudo-tuberculosis organisms—Petri[24] in milk, Moëller[25] in milk, in "Timotheus" grass, and in fæces of cattle. The characteristics of Rabinowitsch's micro-organism are as follows. It is immotile and in form closely resembles the bacillus tuberculosis. The bacilli generally occur singly and are often slightly curved, but when growing rapidly in tissue bacilli are often found lying parallel. Sometimes they form long unbranched threads, and sometimes are divided into short pieces. The bacilli are somewhat thicker than bacillus tuberculosis and often show a club-shaped swelling on one side. Spores are not formed, but one portion of the bacillus

[6] THE LANCET, Jan. 14th, 1899, p. 74.
[7] Aerztliches Intelligenzblatt, 1880, p. 409.
[8] Archiv für Hygiene, 1883, Band I., p. 121.
[9] Inaugural Dissertation, Berlin, 1884.
[10] Deutsche Zeitschrift für Thiermedicin und Vergleichene Pathologie, 1884, and 1891, p. 1.
[11] Archiv für Klinische Medicin, 1889.
[12] American Journal of the Medical Sciences, November, 1889.
[13] United States Department of Agriculture, Bureau of Animal Industry: Bulletin 3, 1893, p. 60; also Bulletin 7, 1894, p. 75.
[14] Journal of Comparative Pathology, 1897, p. 192.
[15] Zeitschrift für Hygiene, 1889, Band I., p. 145.
[16] Zeitschrift für Fleisch- und Milchhygiene, 1899, p. 221.
[17] Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1889, Band v., p. 294.
[18] Giornale della Reale Società d'Igiene, 1890.
[19] Giornale di Med. Veter. Prat., 1890, p. 201.
[20] Correspondenzblatt für Schweizer Aerzte, 1894.
[21] Inaugural Dissertation, Marburg, 1896.
[22] Centralzeitung für Veterinär-, Viehmarkts-, und Schlachthof-Angelegenheiten, 1897, Nos. 14 and 15.
[23] Zeitschrift für Hygiene, 1897, p. 90.
[24] Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1898, Band xiv.
[25] Therapeutische Monatshefte, November, 1898.

stains often more intensely than the rest. The bacilli stained by many methods of staining tubercle bacilli cannot be distinguished from the latter; only by the employment of very dilute watery solutions of methylene blue could any distinguishing feature be observed—viz., that bacilli from a culture of bacillus tuberculosis stain only at one spot, the rest of the bacillus remaining unstained, while in the case of bacillus pseudo-tuberculosis the whole bacillus stains faintly and generally uniformly, seldom showing a more deeply stained part.

Cultural differences, however, occur. On agar the bacilli taken direct from an infected animal produce visible colonies on the second or third day. At first the agar surface is covered with a thick, moist, creamy layer; in old cultures by a folded membrane often orange- or copper-coloured. After repeated passages through animals cultures on agar or glycerine agar show a dry, brittle, crumpled membrane resembling that of bacillus tuberculosis. In plate cultures the deep colonies are grey in colour, round or oval, and uniformly granular. On the surface colonies are better developed, have a uniformly granular grey centre, and a clear wavy outer zone; the surface of the colony is often dry and conical. On butter-agar in fresh cultures the colonies are small, white, and dry, later spreading over the whole surface and becoming yellow or copper-coloured. On potato a luxuriantly growing, moist, grey layer is formed. In gelatin growth proceeds very slowly at ordinary room temperatures, colonies becoming visible on the third day. In broth, and especially in glycerine broth, growth is rapid, forming in two or three days a folded membrane on the surface, the broth remaining clear, the culture closely resembling that of bacillus tuberculosis. Broth cultures are distinguishable from those of bacillus tuberculosis by their characteristic odour, being unpleasant and ammoniacal, that of bacillus tuberculosis being agreeable and resembling the odour of flowers. A small quantity of indol is formed in broth cultures, which is not so in bacillus tuberculosis cultures. Milk is not coagulated and on the surface is an abundant yellowish-red layer which clings firmly to the glass. On albumin-free colourless media a growth appears in two or three days, becoming in ten days a thick yellow folded membrane, bacillus tuberculosis in the same time on such media forming a thin layer just covering the surface and just beginning to fold. The presence of fat in these bacilli can easily be demonstrated as in the case of bacillus tuberculosis.

Pathogenic properties of bacillus pseudo-tuberculosis.—The following are the post-mortem appearances observed in a guinea-pig killed three or four weeks after intra-peritoneal injection of butter containing the bacillus pseudo-tuberculosis. There is a slightly distended abdomen; also peritonitis with adhesions varying in nature from delicate fibrinous bands to firm connective tissue. The peritoneum and mesentery are studded with nodules. The mesenteric glands are swollen and may contain purulent or caseous matter. The liver is covered with nodules and patches which may be raised above the liver substance or may penetrate into the liver parenchyma. The spleen is sometimes only enlarged, at other times thickly studded with nodules. The kidneys show yellowish patches. The lungs are covered with small transparent nodules which do not penetrate into the lung tissue. The sternal lymphatic glands are swollen, but show no caseation. Numerous bacilli can be demonstrated in these lesions. Many animals after injection show considerable signs of illness during the first 14 days with diminution in weight and then recover. Pure cultures of this bacillus are only pathogenic for guinea-pigs (but not always); rabbits and white mice are immune. After intra-peritoneal inoculation of guinea-pigs some die in from four to eight weeks with considerable emaciation and show the following post-mortem appearances; others survive. At the seat of inoculation there is a purulent infiltration containing the characteristic bacilli; also peritonitis varying in intensity from a flocculent fibrinous exudation to strong connective tissue adhesions. The mesentery is studded with small nodules; the glands are enlarged but not caseating; there are patches on the liver, and miliary nodules throughout an enlarged spleen. The thoracic cavity and organs are often almost exempt from lesions. Infected animals do not react to tuberculin. Histologically the nodules in the liver and spleen consist of a collection of lymphoid elements with but very few epithelioid and multinuclear cells. The bacilli are found in the middle of a young nodule, towards the periphery if caseation has commenced. The typical giant cells of tuberculosis do not occur. More often—especially after inoculation with butter containing the pseudo-tuberculous bacilli—the nodules appeared to consist of a central necrosed portion surrounded by leucocytic infiltrated area.

TUBERCLE BACILLI IN MARGARINE.

Margarine was first prepared by M. Mège Mouriès. In his process 1000 kilogrammes of ground fat from freshly slaughtered cattle is mixed with 300 kilogrammes of water, one kilogramme of potassium carbonate, and two sheep's or pig's stomachs cut into pieces, and is heated at 45° C. by steam for two hours. The fat rises and, after being skimmed, is run off and heated at from 30° to 40° C. with 2 per cent. of salt, the clear fat being then poured off from the sediment and cooled at from 20° to 25° C. The granular solid product is cut into pieces, packed into linen, and exposed to hydraulic pressure at about 25° C. with the production of a solid cake of stearin and a liquid oleomargarine, which is passed through cylinders and washed by a shower of water. Of the melted oleomargarine 50 kilogrammes are mixed with 25 litres of cow's milk and 25 kilogrammes of water in which has been macerated 100 grains of finely ground mammary gland of the cow. Annatto is added and the whole churned for about two hours and the product kneaded and washed.

In the method employed in the United States, Austria, and some parts of Germany pepsin is not added, the original finely ground fat being subjected to a temperature below 50° C. for some time. The oleomargarine is mixed with sour milk and a small quantity of bicarbonate of soda and annatto and is churned. After about 15 minutes it is cooled in ice and then kneaded to eliminate the water, then returned with more sour milk and is ready for sale. In Holland the oleomargarine is melted at about 50° C. and is mixed with the requisite amount of milk and of the best Kampen butter and earthnut (arachis) and other oils (cotton, palm, cocoanut, &c.) to lower the melting-point to that of butter. The Kampen butter is prepared specially for this manufacture from an unskimmed mixture of milk and cream and is preferred on account of its powerful flavour which, though unpleasant alone, imparts a pleasant flavour to the margarine.

Hence margarine may be infected in three ways—(1) from the original cattle (tubercle bacilli survive even a temperature of 55° C. for almost four hours); (2) from the butter and milk added; and (3) from contamination during manipulation (phthisical workmen, &c.). Few researches as to the presence of tubercle bacilli in margarine had been done before the year 1899. Morgenroth,[16] of the Hygienic Institute, Berlin, early last year examined 20 samples of margarine and in nine cases proved the presence of virulent tubercle bacilli of Koch—a very large percentage (45 per cent.).

In October, 1898, in Berlin I commenced researches on this question. 36 samples of margarine were collected from shops in different parts of Berlin. Two guinea-pigs received 5 cubic centimetres each from each sample intraperitoneally, the margarine having been just melted at from 45° to 50° C. and injected semi-fluid. Of the 36 samples 21 caused death of both guinea-pigs inoculated within 10 days; nine others caused the death of one only of the pair—from peritonitis or septicæmia. So that 15 samples only could be considered, nine with one animal each, six with two. These were all killed some eight or 10 weeks after inoculation, but with one sample only, and that in both the guinea-pigs injected, could there be found any lesion indicating the presence of tubercle bacilli. In these were nodules on the mesentery, containing caseous material; enlarged, purulent mesenteric glands, the intestines and organs were adherent to each other and to the abdominal wall, the liver was enlarged and studded with several dirty yellow patches penetrating into the liver tissue, the spleen was adherent but apparently normal (it was enlarged in one case), and the lungs were dotted on their surfaces with small transparent nodules. The lymphatic glands and nodules on the liver contained bacilli in large number staining by Ziehl-Nielsen's method. Cultures failed because of rapid overgrowth of accompanying micro-organisms. Subcutaneous inoculation into guinea-pigs from the lymphatic glands and liver nodules gave rise to abscesses which evacuated and healed, bacilli staining by Ziehl-Nielsen being demonstrated in the pus. These animals,

[16] Hygienische Rundschau, November, 1899.

killed some weeks after, showed no further lesion. In sections of the nodules in the organs of the original guinea-pigs the *typical* tuberculous characteristics (giant cells and epithelioid cells) failed. The lesions were therefore probably occasioned, not by Koch's bacillus tuberculosis, but by an organism identical or similar to that described by Rabinowitsch and detailed above.

In Liverpool early in 1899 the experiments were continued with 13 samples collected from various shops in the city. Subcutaneous inoculation was practised, two guinea-pigs for each sample. In this case only two guinea-pigs died within 10 days—so that two samples had only one animal each. Out of these 13 samples only one proved to be tuberculous, the guinea-pig exhibiting post mortem the typical characteristics, both macro- and micro-scopically, of real tuberculosis. Inoculations from the lesions subcutaneously were followed by typical tuberculosis in guinea-pigs. Thus out of a total of 28 samples, 15 of Berlin and 13 of Liverpool margarine, only one proved to contain virulent bacillus tuberculosis of Koch, and that in a sample from the latter city.

I wish to take this opportunity of thanking my late colleagues at Professor Koch's Institute for their great courtesy and kindness towards me during the 18 months when I worked among them, and particularly Professor Koch, Professor Pfeiffer, Professor Brieger, and Professor Frosch for their help and advice during my researches.

Liverpool.

THE FEASIBILITY OF CARRYING OUT THE OPEN-AIR TREATMENT OF CONSUMPTION AT THE PATIENT'S HOME;

WITH AN ACCOUNT OF A SUCCESSFUL CASE.

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AND

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THE statement recently made by a distinguished physician[1] that in 95 per cent. of the cases of phthisis seen by the medical practitioner the patients are unable to afford treatment away from their homes, does not appear to us to be very wide of the mark. And in addition to the item of expenditure there are, amongst other disabilities which bar the way to effective treatment, those salient ones of severance from home; the cessation, in the case of the bread-winner, of the family income; and the depressing influence, to some temperaments, of an environment of sick people; all of which render it advisable to possess a substitute for the treatment by sanatorium or sea-voyage when such methods are impracticable.

The following case was an example of acute pulmonary consumption in which the patient adopted, and was apparently cured by the open-air treatment carried out at his own residence. He kept in touch, at the same time, with a large city business which, for certain specific reasons, he was unable to leave in other hands—a procedure which would have been inevitable had treatment away from home been agreed to. The patient, a merchant, aged 30 years, consulted one of us in the latter part of May, 1899, complaining of cough, especially in the morning, scanty muco-purulent expectoration, and hoarseness. He also suffered from loss of appetite, nausea after food, and considerable loss of weight—seven or eight pounds since the beginning of May. The patient stated that he lacked all energy, was unrefreshed by sleep, feverish, and troubled with night-sweats. He had had, according to his own account, an attack of influenza early in May, about which time the symptoms enumerated began. The supposed attack of influenza was marked by repeated chills, indefinite pains, and fever. Up to that date he had been in fairly good health, although the exigencies of his business had caused him a great deal of work and worry, and he had been, in consequence, rather "burning the candle at both ends." On examination there was some loss of resonance and of expansion at both apices, with increased vocal fremitus, bronchophony, harsh breathing, and prolonged expiration at the left apex. There was a faint systolic mitral murmur and accentuation of the pulmonary second sound. The temperature averaged 102° F. in the morning and 103° in the evening. The larynx was in a condition of catarrhal inflammation, and microscopic examination of the sputum revealed large numbers of tubercle bacilli. The cough, pyrexia, and other symptoms continued without much change for about three weeks. On June 29th the patient was seen by us in consultation and we considered the case to be one of early acute pulmonary phthisis with a catarrhal laryngitis, possibly pretuberculous. The condition of matters was explained to the patient and the various methods of carrying out the open-air treatment were discussed. He was extremely unwilling to take a voyage or to leave his home for any length of time, as he felt that the neglect of his business, which was a personal one, would result in serious trouble, and both he and his friends were so much opposed to the usual sanatorium treatment that the idea was relinquished.

Creasote, maltine, and an inhalant were prescribed; a liberal diet was enjoined and the patient was advised to spend as much time as possible in the open air. His house was, fortunately, situated in the country, at a village about 12 miles from the city where he carried on his business. Although in no sense a health resort, the climatic and sanitary conditions of the village are good. The death-rate is 14 per 1000 and there are few indigenous cases of phthisis. The rainfall for 1899 was 26·25 inches and there is seldom any fog. The patient's residence, which is built on sandy soil, faces south-east. On August 9th, after adopting the modified treatment indicated above for about six weeks, the patient was again seen in consultation; and the condition then reported was that the cough, night-sweats, and anorexia had all considerably lessened; the nocturnal temperature had fallen to 99° and a gain in weight of 16 pounds had accrued. An examination of the lungs, however, showed that the tuberculous process was still active. There were signs of softening at the right apex and at the right base there was a small patch of pleurisy. The left apex and the larynx were practically *in statu quo*. It was therefore suggested that he should carry out the open-air treatment quite systematically and that it should be supplemented by moderate over-feeding and graduated exercise under our supervision. The method then adopted was to spend at least six or seven hours daily in the open air, either walking about slowly or driving, or sitting in the garden. The "lung gymnastics" recommended by Dettweiler were frequently practised.[2] If the weather were wet the patient sat in a shelter (summer-house) facing the south; or if not very rainy he took short walks clothed in suitable garments—which he exchanged for dry ones as soon as he came indoors—and thick waterproof boots. The windows in his bedroom and in the sitting-room which he occupied always remained widely open. His friends at first objected to this excessive ventilation but soon got accustomed to it. As the weather grew colder it was found advisable for the convenience of visitors to the house that one receiving-room should be set apart for the patient, and another, more in consonance with modern ideas of ease, for those who objected to such "cold comfort" as the invalid could dispense. On one day in each week the patient spent a few hours at his office, returning to the country as soon as possible. The diet was not rigidly prescribed, but the principles of moderate over-feeding were explained and the patient was advised to eat a little more than he felt inclined to. Roughly speaking, the daily menu was as follows: At 4 A.M., half a pint of milk (with half a wineglassful of whisky). 8.30 A.M. breakfast: full meal of fish or eggs with, perhaps, a small quantity of stewed fruit. At 10 A.M., half a pint of milk containing a raw egg. At 1.30 P.M. dinner, consisting of three courses, the food being as varied as possible each day. Cheese was always taken. At 4 P.M., afternoon tea. At 6.30 P.M., half a pint of milk containing a raw egg. At 9 P.M., a large plateful of porridge with milk *ad lib.* The results of this diet were that in the first week the invalid gained two and a half pounds. In the

[1] Osler: The Home Treatment of Consumption, Brit. Med. Jour. Rpit., Dec. 16th, 1899.

[2] During steady walking five or six deep breaths are taken through the nose every 100 or 150 paces; or when lying in the open air, 10 or 12 deep breaths every five or 10 minutes.

second week the digestive organs rebelled somewhat. The patient suffered from gastric catarrh and lost one pound and he also felt generally less well. During the third week the gastric symptoms disappeared and two pounds in weight were superadded. After that time he gained, on an average, one pound per week up to Oct. 13th (about three and a half months from commencing treatment), when he found that he had gained an aggregate of 28 pounds, or an average on the whole time of about two pounds per week. His present weight (Jan. 1st, 1900), seven months after commencing treatment, is 10 st. 11 lb., an increase of 2½ st. in that time.

The total effect of the combined fresh air, the feeding, and the exercise was that, in addition to the gain of weight, the cough and expectoration rapidly and entirely disappeared, the night-sweats vanished, he had no return of the dyspepsia, the temperature kept within normal limits, the larynx returned to its normal condition, and the patient, on Oct. 13th (about two months after commencing the open-air treatment systematically), appeared both subjectively and objectively to be perfectly well. The condition of the lungs at this date was, no abnormal dulness at either apex, expansion good, breath sounds vesicular, and expiration not prolonged. The moist râles had quite vanished. Re-examinations of the sputum have failed to give any evidence of tubercle bacilli. The patient informs us that he spent one of the six months during which he was under treatment at Rhyl in North Wales. He wrote to us last at the end of December, 1899, and reported himself as being perfectly well.

The case described above appears to have been an acute tuberculous broncho-pneumonia, an instance of one of the commoner forms in which phthisis florida, or what is popularly known as "galloping consumption," is met with. The loss of flesh and strength in such patients is very striking, and frequently out of proportion to the physical signs. The temperature is high, the pulse is rapid, and the respirations are increased. There may be repeated chills, as in the instance of our patient; and we suspect that the symptoms noted early in May were attributable to the tubercle bacillus rather than to the organism of influenza. Three points greatly in favour of the method adopted were the incipiency of the disease, the power which the patient enjoyed of securing abundant good food and favourable surroundings in the country, and the intense interest which both he himself and his friends took in the treatment. Perhaps the most serious indictment which has been brought against the home treatment of early phthisis is the absence of that discipline which prevails in sanatoria, and without which it would sometimes be impossible to enforce what may appear to the lay mind as unnecessarily drastic measures. The only remedy for this appears to be the substitution, in a measure, of the authority of the practitioner in attendance for that which would appertain to the director of a sanatorium, were the patient in such an institution, and the early settlement of the rival claims, on the one hand, of the patient's friends and, on the other hand, of the medical man, to conduct the treatment of the case. If the practitioner feels unequal to the task of breaking through the phalanx of lay ignorance and prejudice with which he may be confronted, it appears to us far better to advise that the patient be sent to a sanatorium.

It is possible for any phthisical patient living in the country and possessing a garden in which a small shelter can be erected to carry out the treatment; but he should be under the strict supervision of his medical man who takes the thermometer as his principal guide to the amount of exercise, &c., which the patient is to practise. Daily supervision of this kind was carried out in the case quoted above. The shelter, facing the south, should contain a couch or chair and be provided with moveable curtains or shutters to keep out the cold winds and driving rain. The open-air treatment ought not to be intermittent, but carried on throughout the 24 hours, the windows being widely opened when the patient cannot be out of doors.

But although the home treatment of consumption will in all probability yield the best results where the pinch of poverty is not felt, it does not follow that the poor are altogether debarred from its advantages. Osler,[3] in a recent paper, has advocated its employment for the benefit of this class of patient. And whilst he admits that the quality of fresh air in large cities may not be very good, he remarks that it is the best that a large proportion of our patients have to breathe, and it is considerably superior to the atmosphere of the ill-ventilated, over-heated rooms in which the majority of them live. Even for those of the poorer classes who apply at a hospital for consumption when the disease is in its curable stage, there are many weary days of "waiting for beds" when effectual treatment is practically in abeyance, when valuable time is being lost, and the patient is slipping towards the boundary which delimits the possibility of cure. For such as these Osler gives the following directions:—Take the almanack and count off the hours of sunshine. In the winter cut off two hours in the morning and one hour in the evening, and for the rest of the day the patient must be out of doors. If there is no possible arrangement for life out of doors the patient must be put in a room with a southern exposure and the bed moved in the sunshine, with the windows wide open. If there is a balcony or verandah with a good outlook towards the south it should be arranged for the patient; if not, a shelter could be put up in the yard at a very moderate cost. On a well-padded lounge, covered with a couple of thicknesses of blankets, the patient sits or reclines all day. Only on blusterous, stormy, or very rainy days is the patient to remain in the house. No degree of cold is a contra-indication.

We have drawn attention to the case reported above with a view of stimulating the home treatment of consumption in those instances where treatment at a sanatorium—which is preferable if possible—is found to be, for some reason, impracticable; and also with the idea of counteracting the feeling which some of the profession entertain towards the sanatorium treatment, that in the management and cure of early phthisis the axiom *aut sanatorium aut nihil* practically sums up the whole position.

[3] Loc. cit.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

GUY'S HOSPITAL.

A CASE OF SEVERE INTRA-UTERINE HÆMORRHAGE FROM CYSTIC MOLAR PREGNANCY.

(Under the care of Mr. J. H TARGETT.)

A WOMAN, aged 28 years, was admitted into Guy's Hospital on Sept. 29th, 1898, for swelling of the abdomen and vaginal hæmorrhage. She had had four full-term and normal parturitions and no miscarriages. Her last confinement was on July 15th, 1897, and she nursed the child for about a year. Menstruation returned during the latter part of her lactation and her last menstrual period began on July 1st, 1898. On August 15th she had a sudden hæmorrhage from the vagina and began to be sick, but she had no idea that she was pregnant. The bleeding occurred whilst the patient was at supper and was accompanied with sharp pain in the right iliac region and groin. It recurred at intervals during the night and the next day she was better, but on the third day the hæmorrhage became continuous and the vomiting was frequent. There was no abdominal enlargement at this time, but from the onset of the bleeding until the date of admission the abdomen had steadily increased in size. Micturition was frequent and the bowels were much confined.

When admitted to the hospital more than six weeks after the onset of the hæmorrhage the patient was decidedly blanched and much wasted. The temperature ranged between 99° and 100·5° F. The breasts were very small and lax; they contained no secretion and showed no recent pigmentation. The abdomen was occupied by a large central swelling of the size of a seven months' gestation. It was pyriform in shape, rising out of the pelvis to the level of the ninth costal cartilages, and had a uniform outline. The tumour had an elastic feel and gave a most distinct thrill in all directions, but it hardened on palpation like the

pregnant uterus. The loins and epigastric region were resonant, and no fœtal heart-sounds or uterine souffle was detected after repeated examinations. Per vaginam the cervix uteri was found to be softened and the external os patulous, and there was a constant but not profuse discharge of a dark-red sanguineous fluid. The abdominal tumour was directly continuous with the cervix uteri and was therefore without doubt the enlarged body of the uterus. In view of the large size of the uterus, the constant sanguineous discharge, and the absence of all signs of a fœtus a diagnosis of vesicular mole was made.

On Oct. 1st the uterus was evacuated under an anæsthetic. The cervix was slowly dilated with Hegar's dilators and by degrees two fingers were inserted, but the dilatation was difficult owing to rigidity of the cervix. The body of the uterus felt like a large sac with lax walls and a small rigid orifice. It seemed to be filled with soft blood-clot. By pressure on the fundus the clot was brought within reach of the two fingers in the uterus and thus removed as rapidly as possible. But the uterus did not contract and the hæmorrhage at one time was very profuse and alarming. Much of the clot, however, was dark and had evidently existed in the uterus for some time. The last portion of the uterine contents consisted of typical vesicular mole, recent blood, and fluid. To control the hæmorrhage the flabby uterus was strongly anteflexed over the pubes by bimanual pressure and a hot douche was prepared. The combined effects of kneading, pressure, and heat induced uterine contraction and retraction, and two hypodermic injections of ergotin were then given. The quantity of blood lost could not be estimated, but it must have been very considerable as the uterus reached nearly to the ensiform cartilage and fully three-fourths of its contents consisted of old and recent blood-clot, the rest being cystic mole. It was afterwards found that the cervix had been split rather deeply into the right fornix, which must have occurred during the rapid digital evacuation of the uterus on account of the hæmorrhage, as no instruments were used for this purpose. The rigidity of the cervix greatly hampered the use of the fingers.

The subsequent progress of the case was slowly towards recovery, and during the greater part of a tedious convalescence the temperature ranged between 99° and 100·5°, but it only reached 101° on one occasion. A small cellulitic effusion formed on the right side of the cervix in connexion with the above-mentioned laceration, and this in turn appeared to cause a swelling in the right iliac region which gradually enlarged and extended back into the right loin. It felt distinctly elastic, like fluid, and could be grasped bimanually through the loin, suggesting a hydronephrosis on the right side, possibly due to pressure on the right ureter. The involution of the uterus was much delayed, and when the patient went to a convalescent home seven weeks after the operation the fundus uteri was still three inches above the pubes. The right iliac swelling had disappeared and the parametritis was much diminished but the patient was still decidedly anæmic. No suppuration occurred either in connexion with the iliac swelling or the cellulitis of the right broad ligament.

Remarks by Mr. TARGETT.—The occurrence of severe intra-uterine hæmorrhage in cases of cystic mole and the resemblance between this condition and concealed accidental hæmorrhage are not mentioned in the text-books, but Dr. Herbert Williamson has recently drawn attention to the subject in a valuable paper read before the Obstetrical Society of London.[1] He records a case which in many points resembled mine, but the hæmorrhage was less severe. In regard to the differential diagnosis from concealed accidental hæmorrhage he thinks that the absence of the fœtal heart-sounds and of the uterine souffle is very important. I have met with two other cases of cystic mole associated with abundant hæmorrhage into the uterine cavity and in one of these the abdominal tumour had been mistaken for an ovarian cyst, and ovariotomy was about to be performed. In the case mentioned above the thrill obtained from the large abdominal tumour was so perfect that the same mistake might have been made, but was prevented by the detection of intermittent uterine contractions. Though concealed accidental hæmorrhage is more likely to occur in the later months of pregnancy, yet it may be met with in the first half of the period of gestation, and then the clinical symptoms will more closely resemble those of a cystic mole. A patient came under observation recently for severe vaginal hæmorrhage of three weeks' duration. She considered herself to be four months pregnant, but the uterus was fully of the size of a six months' gestation. No fœtal heart-sounds were heard and no part of a fœtus could be felt. The patient was decidedly anæmic. On exploration of the uterus the cavity was found to contain three pints of old and recent blood-clot with a dead fœtus of about four months' development. The diagnosis of cystic mole had been made, but in reality the condition was concealed accidental hæmorrhage with intra-uterine death of the fœtus. It is generally stated that dilatation of the cervix sufficient for the introduction of two fingers will enable the operator to evacuate the uterus; but in the above case the rigid cervix, though admitting two fingers, split rather than dilated on manipulation, and the same thing happened in one of Dr. Williamson's cases. Moreover, with a uterine cavity so greatly dilated and relaxed, the removal of its contents through such a narrow orifice was tedious and difficult and not without risk to the patient from inefficient control of the hæmorrhage. It would have been better if the cervix had been more fully dilated by hydrostatic bags before the operation was begun. As regards mortality I may note that out of six cases seen during the last three years none died directly from the disease, but one of them developed within a few months a typical deciduoma malignum, to which she speedily succumbed.

[1] THE LANCET, Oct. 14th, 1899 p. 1019.

LIVERPOOL NORTHERN HOSPITAL.

TEN CASES OF MALIGNANT PUSTULE.

(Under the care of Mr. CHAUNCY PUZEY, Mr. DAMER HARRISSON, and Mr. R. W. MURRAY.)

THE great value of excision in cases of malignant anthrax is amply demonstrated by this interesting series of seven cases, although it is possible that the ipecacuanha had some share in the results. The assistance in diagnosis which is afforded by the bacteriological examination of the fluid in the vesicles cannot be over-estimated, and it is, moreover, always advisable to examine the blood for the bacilli as the prognosis depends greatly on the question of the generalisation of the micro-organisms, though cases have been described in which recovery has followed excision even after the bacilli had been discovered in the blood. For the notes of the cases we are indebted to Dr. J. Mandall Coates, late senior house surgeon.

CASE 1.—A tanner, aged 27 years, was admitted into the Liverpool Northern Hospital on March 13th, 1899. The patient had a well-marked pustule, with the characteristic vesicle formation surrounding the central black eschar, situated at the left angle of the jaw. There was considerable swelling all round it extending down the neck and round under the chin. He complained of great difficulty in swallowing and felt very ill. The temperature was 101·8° F. It was stated that four days previously he had noticed in the above situation "a pimple," of which he had taken no notice, and that it had gradually got worse until the date of admission. The difficulty in swallowing had lasted some 12 hours before admission. The fluid from the vesicles on microscopical examination contained the typical bacilli of anthrax in great abundance. Shortly after admission the pustule was freely removed, a circular portion about one and a half inches in diameter being excised. Pure carbolic acid was applied to the cut surface and the wound was packed to prevent hæmorrhage, which was free. The temperature at the time of the operation was 104·2°, but it gradually fell, and on the following morning it was 102·4° and the patient felt very much better. Ipecacuanha powder (five grains every hour) was given and the powder was also dusted on the wound each time it was dressed. From this date onward the patient improved and on the 16th the temperature was normal; on the 22nd the surrounding œdema had almost disappeared and he was discharged on May 15th.

CASE 2.—A tanner, aged 19 years, was admitted into the hospital on April 25th, 1899. In this case the pustule was situated at the back of the neck in the middle line and displayed the same typical characters as that in Case 1. There was a considerable amount of swelling entirely obliterating the hollow behind the neck. The constitutional symptoms were slight and the patient complained only of some stiffness on moving the neck. The fluid from

the vesicles was examined, but owing to the specimens being inadvertently destroyed the bacteriological diagnosis was uncertain. Shortly after admission the patient was operated on, the pustule and a portion of the surrounding tissues being freely excised; the cut surface was treated by the application of pure carbolic acid. Ipecacuanha powder internally and externally was ordered. The temperature dropped on the next day, but on the 27th it rose to 104° F. The constitutional symptoms became more marked, there was no improvement on the 28th, signs of pulmonary embarrassment becoming apparent and the œdema extending down the neck. On the 29th his breathing became very embarrassed and tracheotomy was performed, the operation being rendered difficult by the fact that the trachea was displaced very much to the right by the œdema; no anæsthetic was used The operation relieved his breathing for a time, but he gradually sank and died in the evening.

CASE 3.—A tanner, aged 27 years, was admitted into the hospital on May 22nd, 1899. He had a typical pustule on the back of the right metacarpal phalangeal joint. Four days previously to admission the patient had noticed a small pimple in the area mentioned which had gradually got larger. On admission the temperature was 100° F. There were no constitutional symptoms and the œdema was slight. The pustule with some of the surrounding tissue was excised, the portion removed being of about the size of a crown piece, followed by the free application of pure carbolic acid and the internal and external use of ipecacuanha powder. The patient made a good recovery and was discharged on July 1st.

CASE 4.—The patient, a washerwoman, aged 36 years, was admitted into the hospital on June 4th, 1899. The patient had a pustule at the right angle of the jaw. It was typical and its character was confirmed by bacteriological examination. Treatment was the same as in the foregoing cases. She made a good recovery and was discharged in four weeks. She stated that she had first noticed the pustule about three days previously. It was ascertained that she had been washing the clothes belonging to a tanner and it is reasonable to suppose that this was the source of infection in her case.

CASE 5.—A tanner, aged 36 years, was admitted into the hospital on May 23rd, 1899. In this case the patient had two separate and discrete pustules, one on the back of the right forearm about its middle and the other on the edge of the lower jaw about two inches to the right of the symphysis. They were typical in character and the fluid from the vesicles in both instances contained anthrax bacilli. The temperature on admission was 98° F. There were no constitutional symptoms. The patient had first noticed the pustule on his arm four days previously, while that on his face he noticed the day after. One point noteworthy in his history was that he had not been working in the tannery for a week before. The treatment was the same as in the other cases and he made a good recovery.

CASE 6.—A tanner, aged 22 years, was admitted into the hospital on June 29th, 1899. The site of the lesion was the forehead. The pustule was typical and its character was confirmed by bacteriological examination. He had first noticed the pustule four days previously to his being admitted. The treatment was similar to the foregoing. He made a good recovery.

CASE 7.—A tanner, aged 21 years, was admitted into the hospital on July 8th, 1899. In this case the pustule was situated on the front of the left forearm. On examination the fluid from the vesicles was found to contain the characteristic organism. There was also a little above the elbow of the same arm a pustule similar in appearance but very much smaller. The treatment was on the same lines as that of the other cases. He made a good recovery.

Remarks by Dr. MANDALL COATES.—Rarely in this country is anthrax seen in human beings showing an epidemic-like character as it did in these cases and its occurrence is noteworthy. Two tanyards were involved, the source of infection being some hides imported from China. Once such infected hides have undergone all the processes necessary in the manufacture of leather it is apparent that the tanyard will be dangerous for some time to come, even if the infected hides are removed, and the possibilities of infection to individuals working in the yard are by no means remote. The advisability of enforcing regulations as regards personal cleanliness, thorough washing, and changing of the working clothes is shown in Cases 4 and 5. In the former case the patient had never been in a tanyard in her life and in the latter the patient had not been working in the yard for a week, but had been wearing his working clothes. Counting the cases which were treated in other institutions there were at least 10 altogether, of which four were fatal, and these were amongst the first to come under notice. The time between the patient first noticing the pustule and admission to hospital was generally either three or four days. The constitutional symptoms were more especially marked in the earlier cases which were fatal, and the slight symptoms in the later cases seemed to point to a diminution in virulence of the organism. As regards the use of ipecacuanha its use in the above cases may have been beneficial, but I think we must rely much more on early recognition of the lesion and free excision. Certainly in one case (Case 6) in which its administration was delayed for two days it had a beneficial effect on the temperature. As to the diagnosis, in none of the cases was it doubtful, and it can always be confirmed in five minutes by microscopic examination of the fluid in the vesicles. This means of diagnosis was used in all the above cases and in six of them it afforded absolute proof.

Note.—Since the above was written three more cases have been admitted. Two of them were men working in the tannery referred to; the third case was that of a woman whose occupation was wool-sorting. In these cases the same line of treatment was adopted and they have all recovered, thus making 10 cases with nine recoveries and one death.

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON.

The Bacteriology of Venous Thrombi.—Mycotic Tumour from a Horse.—"Spontaneous" Carcinoma.—Experiments with the Toxins of the Pneumococcus.—Exhibition of Specimens.

A MEETING of this society was held on Jan. 16th, Dr. SIDNEY COUPLAND, the Vice-President, being in the chair.

Dr. COUPLAND referred to the absence of the President Mr. Watson Cheyne, on account of his departure for South Africa.

Mr. W. PAKES read a paper on the Occurrence of the Bacillus Proteus Vulgaris in a Venous Thrombus. He described a case of thrombosis of the right and left iliac and femoral veins occurring in a patient suffering from phthisis and tuberculous enteritis. The clot in the left iliac vein was examined post mortem and a pure culture of the bacillus proteus vulgaris was obtained therefrom. In spite of the fact that this organism was frequently associated with post-mortem decomposition he did not think that this would explain its presence in the case he described, since these organisms were present in the clot in considerable numbers without any obvious decomposition. He pointed out that an organism like the bacillus proteus vulgaris, which was not pathogenic to a human subject in good health, might become so to a patient whose vitality had been reduced by a wasting illness such as phthisis. He thought that in view of the slight knowledge which we possessed concerning the causation of thrombi it would be well if every case of thrombosis could be examined bacteriologically.

Dr. T. G. STEVENS gave an account of the Bacteriological Examination of a Thrombosed Ovarian Vein following Hysterectomy. The case was one of subacute septicæmia following abdominal hysterectomy. The right ovarian vein was found to be thrombosed from the ligature to the vena cava. Cultures were made, with every precaution against possible contamination, in broth from the breaking-down clot in the vein. The broth culture, after plating on gelatin, showed colonies of the bacillus coli communis group and the bacillus pyocyaneus. The case was brought forward in the hope that when thrombosis occurred in accessible sites more bacteriological examinations of the thrombus might be made. Such examinations, it was hoped, might be an aid to the surgeon in treating cases of thrombotic pyæmia.

Mr. ALEXANDER G. R. FOULERTON showed a Mycotic Tumour which had occurred in the Maxillary Sinus of a Horse. The tumour was of irregularly oval shape, measuring 10 centimetres in the longer and 8·5 centimetres in the shorter diameter. It consisted of a central core of soft caseous material enclosed within a mass of dense fibrous tissue, the latter measuring from 2 to 4·5 centimetres in

thickness. The core contained a large quantity of the mycelium of a mould fungus. The pathogeny of the tumour was supposed to be as follows. The dense outer fibrous layer probably represented the overgrown wall of a suppurating cyst which had been connected with the fang of a carious tooth. The caseous core represented the inspissated contents of the cyst cavity which had been infected by the mould fungus from the mouth. The mycelium was arranged in star-shaped masses; individual threads differed considerably in their thickness; there was no evidence of sporulation. The mycelium stained well by the ordinary aniline dyes, but not by Gram's method. As there had been no opportunity of making cultures it was impossible to give an opinion as to the exact species of the fungus. It was, however, probably not streptothrix actinomycotica, the common ray fungus of horses and cattle. Nor could it be confounded with the aspergillar moulds which also infected horses. From the nature of the specimen it seemed clear that the fungus had existed within the tumour during the life of the animal and did not merely invade the tissues after death. Mr. Foulerton concluded by asking if any of the members could throw light on the nature of the growth.

Mr. S. G. SHATTOCK exhibited a specimen of "Spontaneous" Carcinoma of the Uterus in the Rabbit. Histologically the growth consisted of a columnar-celled papilliferous carcinoma and it affected both the uteri. The mucosa between the many growths was papillary and from such areas the origin of the carcinoma could be traced. There were a certain number of peritoneal metastases. The chief interest of the specimen lay in its bearing upon the experiment recorded last year by Dr. Lambert Lack. This experiment consisted in exposing the ovaries in a rabbit, scraping them, and closing the abdominal wound; the animal, after remaining well for 12 months, then showed signs of abdominal carcinoma and was killed. Many peritoneal nodules were found of columnar-celled carcinoma and the thoracic viscera were involved. Dr. Lack's conclusion was that the dissemination of normal epithelial cells from the ovary had led to the growth of the tumours, and in arriving at this he had been largely influenced by the fact that Professor J. McFadyean had not seen or heard of carcinoma in the rabbit. The condition of the uterine mucosa in Dr. Lack's case was precisely as in that exhibited and there was, moreover, a growth as large as a cherry in the uterine wall itself. Mr. Shattock contended, therefore, that unless the same result could be repeated it must be regarded as a coincidence. The injury inflicted on the ovary also complicated the experiment and he had modified it on a series of rabbits by the method of intra-peritoneal injection of scrapings of ovary, &c., suspended in warm sterilised salt solution. The dissemination of peritoneal papillomata after rupture of a papilliferous ovarian cyst was not a just comparison since normal characters could not be safely ascribed to such epithelium. The contagiousness of the warts that occurred in the mouths of dogs had been proved by the experiments of Professor J. McFadyean and Mr. F. Hobday. These experiments showed also that an immunity to infection might be acquired by inoculation and Mr. Shattock suggested that the disappearance of peritoneal papillomata following removal of the ovarian growth might be due to a similar acquired immunity. When the case of normal epithelium was considered such experiments as were forthcoming told the other way. The intravascular injection of gland emulsions by Lubarsch and his pupils Krückman and Lengemann was in no case followed by the growth of tumours; neither was the traumatic detachment of tissue, whether the fragments were allowed to remain *in situ* or transplanted to another animal of the same species. Though the blood stream was chosen, yet the metastasis that took place both in sarcoma and carcinoma by this stream showed that if the emboli possessed the right characters the growth of tumours followed. The epidermal cysts of the palm and palmar aspects of the fingers that arise from the traumatic dislocation of epidermis into or beneath the substance of the corium furnished an excellent object-lesson of what ensued in such cases. He had referred to this on the occasion on which Dr. Lack had exhibited his specimen in July of last year. Amongst the same class of phenomena must be ranged the multiple formation of cysts which may follow the rupture of an ovarian dermoid. Here, again, there ensued a production of simple circumscribed cysts and not a carcinomatous infection of the peritoneum such as should arise were the mechanical hypothesis of the origin of carcinoma a true one.—Dr. SIDNEY COUPLAND remarked that the facts to which Mr. Shattock had drawn attention were of the greatest interest and the inferences deduced had certainly carried conviction to his mind. Certain epithelial cells seemed to be endowed with the property of malignancy. The subject of the infectivity of warts was also one of great interest in view of the remarkable way in which they appeared and disappeared spontaneously.—Mr. C. A. BALLANCE thought that it was a fact now generally recognised that the action of normal epithelial cells when transplanted into other tissues or lymph spaces was limited. They only had a certain power of development, but when malignant their power of growth was unlimited. What was this property of malignancy? Dr. Lack's experiment did not settle the question, but in the contents of the Graafian follicle they had something quite special, for if these epithelial cells came in contact with (became infected by) certain other cells, the spermatozoa, they at once took on that most remarkable power of growth which resulted in the fœtus. Almost the same thing might be seen in cancer cells which took on unlimited growth (terminated in short only by the death of the individual) when they became infected by the hypothetical microbe of cancer. He (Mr. Ballance) agreed with Mr. Shattock that Dr. Lack's experiment was nothing more than a remarkable coincidence. An experiment required to be repeated again and again to be of any use. He and Mr. Shattock had repeatedly, in the course of their experiments, found that what they had taken for a law was only an incident.

Dr. A. G. AULD read a paper embodying the Results of Experiments with the Toxins of Pneumococcus performed in the Research Laboratories of the Conjoint Board. Nearly 200 animals, chiefly rabbits, were experimented on during a period extending over two years. The first series of experiments related to the production and action of toxins found in the organism. To counteract the effects of the lactic acid produced by the coccus, which inhibited its further growth, various media which were described were used. Side by side with the animals inoculated with virus "control" animals were always kept. Toxins of gradually increasing virulence and cultures of different generations were injected in the different series of experiments which were fully described by Dr. Auld. The most notable result of these experiments was undoubtedly the increased sensitiveness to the pneumococcus produced by inoculation of its toxins, in rabbits at least. Under all circumstances of dosage this super-sensitiveness was manifest, and consequently any attempts to immunise in this way seemed to be contra-indicated. These results, however, harmonised to some extent with what had been found in the case of plague and other toxins. This harmful action of the toxins would indicate that the intra-cellular poisons of the bodies of the micro-organisms were probably the most suitable immunising agents, and this view was borne out by the experiments of Foà and Scabia,[1] who stated that a watery glycerine extract of the dead bodies of the pneumococci formed a much better minimising medium than the diluted virus itself. The lethal dose of toxin obtainable in these experiments was about one-hundredth part of the weight of the animal, which corresponded with the lethal dose of the filtered extract of the blood and tissues of rabbits dead from pneumococcal infection, as was found by Isaeff. The occurrence of fore-leg paralysis in two cases was noteworthy, and, as far as Dr. Auld was aware, had not hitherto been observed. It would appear that the poison had a relative affinity for the nerves and their centres supplying these parts. Dr. Auld, in conclusion, desired to acknowledge the help and participation which he had received from Dr. Cartwright Wood in these researches.—Dr. J. W. H. EYRE wished to ask Dr. Auld what was the source of the pneumococcus used in these experiments and what were the features by means of which he established its identity, since it was important to establish its identification. Another point he wished to refer to was the reaction of the media in which the cultures were grown; it was not sufficient that these should be neutral, they must be decidedly alkaline to grow the pneumococcus successfully.—Mr. W. PAKES remarked that this increased susceptibility or hyper-sensibility of an animal produced by the introduction of pneumococcus toxins was a somewhat novel result in his experience and he would like to know in what other organisms it obtained.—

[1] Gazetta Medica di Torino, 92; 13, 14, 16.

Dr. AULD, in reply to the first speaker, said the organism was a capsulated diplococcus whose identity was beyond dispute. As regards the alkalinity of the media, this was insured by the layer of chalk at the bottom of the flask, which was occasionally stirred or shaken, a fact to which he had already made reference. It was to this high alkalinity that he attributed the extreme virulence of some of the growths which he had obtained. The hyper-sensitiveness of the animals produced by the toxins was certainly a remarkable result, but it was to be found under certain conditions in connexion with plague, diphtheria in guinea-pigs, and he believed with tuberculin under certain circumstances.

The following card specimens were exhibited :—

Dr. E. M. CORNER : A Supra-patellar Sesamoid Bone.

Dr. H. A. LEDIARD : (1) A Loose Cartilaginous Elbow-joint ; and (2) Hydatid Cyst from Muscle.

CLINICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on Jan. 12th, Sir R. DOUGLAS POWELL, the President, being in the chair.

Mr. J. HUTCHINSON, jun., narrated a case of Subperiosteal Resection of the Os Calcis, followed by complete reproduction of the bone. The patient was a lad who at the age of 15 years became the subject of acute periostitis and osteitis of one os calcis. At the end of five weeks from the onset of the disease, after the sinuses had been explored, the os calcis was found to be necrosed, and three weeks later the whole bone was removed, taking care to leave the periosteum, in which new bone was beginning to form. After this the patient, who had been extremely ill with high fever, began to improve, and now at the end of ten months he was walking well with the aid of a stick. There was a well-shaped firm heel on which the patient could stand upright with perfect ease.—Mr. HERBERT PAGE remarked that removal of the os calcis was not a new operation. It was done by his father in 1848, and he had in his possesion a plaster-cast of a man's foot on whom the operation had been performed in that year. Mr. Hutchinson's case was a very interesting one, the chief importance lying in the fact that the os calcis had been so completely reproduced.—Mr. J. HUTCHINSON, jun., in reply, said that he did not wish to lay claim to any originality, but he thought that the case was one of sufficient rarity and interest to bring forward as showing what favourable effects could be produced by subperiosteal resection of the os calcis.

Mr. J. R. LUNN showed two cases of Diplegia Facialis, one occurring in a man and the other in a woman. Both were due to double ear disease. Both sides of the face were quite paralysed and immobile, the skin was smooth, and it was impossible for the patient to close the eyelids in either case. All the muscles showed the reaction of degeneration, the masseters alone being unaffected. Both patients were absolutely deaf and the membrana tympani were perforated. The woman at first had been quite unable to taste anything, but lately the sense of taste had returned. In the man, who had been paralysed for a longer time, taste was wanting at the tip and sides of the tongue but was preserved elsewhere. There was no paralysis of the palate in either.

Mr. LUNN also showed a case of Congenital Dislocation of the Right Hip occurring in a child, aged five years. The family history was not obtainable. The dislocation was on the right side. The patient stood with the right foot markedly everted ; her gait was "waddling," but this was not so marked whilst running. An appreciable amount of lordosis was present, but it disappeared in the recumbent position. The upper border of the right trochanter was above Nelaton's line. There was a limp on the affected side, and the right shoulder was lower than the left. There was no appreciable wasting of the gluteal muscles. Traction caused a disappearance of the shortening which amounted to three-quarters of an inch. The head, neck and shaft of the bone were slightly atrophied.—Mr. J. JACKSON CLARKE asked what treatment it was proposed to adopt in the case, which was certainly one of a moderate degree of congenital dislocation. There was a considerable limitation of abduction in these cases which was inconvenient. He thought well of Laurenzi's bloodless method of treating such cases. The results of this method he had found very satisfactory.

Mr. LUNN also showed a case of Paroxysmal Hæmoglobinuria occurring in a child aged six years. The patient was admitted on Nov. 28th, 1899, for hæmaturia. Her urine had been examined on a great many occasions, no reaction for blood being obtainable until Dec. 9th. The urine was blood-coloured when exposed to the cold, but a positive guaiacum and ether test was seldom obtained. She had not had scarlet fever. The patient had never been known to pass any calculi per urethram, but was said to have once had "gravel." Mr. Lunn had seen her sister, who was evidently suffering from syphilitic choroiditis and interstitial keratitis.—Mr. W. G. SPENCER referred to a case of paroxysmal hæmoglobinuria under his care in which gangrene occurred after a horse-bite. There was a considerable degree of arterial tension in that case. He also referred to the association of such cases with Raynaud's disease. These cases sometimes ended in uræmia, and at any rate the prognosis of cases associated with high arterial tension was generally grave.—Dr. A. F. VOELCKER thought it was very interesting to note the association of syphilis with the disease in the child. In three cases of paroxysmal methæmoglobinuria which he had seen there had been this association and in one of them, that of a child, the syphilis had been acquired. Another interesting point in Mr. Lunn's case was the blood-changes. In some cases of methæmoglobinuria he had noticed in the blood that the corpuscles did not run into rouleaux, but that they seemed to show an unduly adhesive power so as to form long snake-like chains under the microscope. In all three cases of methæmoglobinuria associated with syphilis, he had noticed this change.—Dr. G. A. SUTHERLAND remarked on the occurrence of albuminuria in these cases. Some held that intermittent albuminuria and paroxysmal hæmoglobinuria were different stages of the same disease—the former being the initial condition. He would like to know whether there had been any oxalates in the urine. This was often a striking feature in these cases and it persisted after the hæmoglobinuria had passed off.—Mr. LUNN, in reply, said that the child was one of a family of 24. She was all right unless she was exposed to cold ; then the temperature would rise to 99° or 100° F., the patient would become somewhat collapsed, and blood would be passed in the urine. There was no history of any symptom of Raynaud's disease in the case. Oxalates had been found in the urine.

Mr. CHARTERS SYMONDS showed a case of Malignant Goitre after two operations in a woman. The growth was first seen in September, 1897, and affected the left lobe only ; it was hard, fixed, and nodular. The thyroid cartilage was pushed over to the right. There was morbid dyspnœa so that tracheotomy was becoming necessary. There was a history of a thyroid swelling for nine years which had been stationary till 18 months before the September of 1897. In October, 1898, a part of the growth was removed and a tracheotomy tube was introduced. The pressure was so much relieved that the tube was removed in six weeks. A second and more extensive operation was performed on April 18th, 1899, as the pressure had again returned. At this operation an attempt was made to remove the whole of the growth. The trachea was exposed and freed from the growth, the upper and central parts being easily extirpated. It was thought unwise to remove the lowest part because of the relation to the great veins. The interest of the case lay in the very little bleeding that occurred ; in the relief afforded ; in the unilateral character of the growth ; and in the long history of a local enlargement before the malignant growth appeared. Mr. Symonds referred to another case which he had treated in a similar way. The growth was a true epithelial formation. At the present time the patient was comfortable, could sleep without stridor and, save for a small tracheal fistula, suffered little inconvenience. There was complete paralysis of the recurrent nerve.—Mr. ARTHUR BARKER asked if the other case which Mr. Charters Symonds had seen had run as chronic a course as this one. It seemed to him that malignant disease of the thyroid gland was somewhat peculiar in this respect and he mentioned one case in which the enlargement had existed for six years before it took on what seemed to be a malignant growth and then it lasted for 12 years, during which time six operations had been performed. He had brought the case before the Pathological Society of London and the Morbid Growths Committee had decided that the microscopic appearances were undoubtedly malignant. He had also met with another similar chronic case.—Mr. CHARTERS SYMONDS, in

reply, said that this case had only had a history of three years. His other case had been less chronic than those referred to by Mr. Barker. It was to be remembered that there were certain adenomatous forms of thyroid tumour which very much resembled malignant disease.

Mr. J. JACKSON CLARKE exhibited a case of Ankylosis of the Temporo-maxillary Joint in a girl, aged nine years, who had had complete fixation of the lower jaw for over three years dating from soon after an attack of scarlet fever. When the condition was first noticed the patient was taken to a London hospital, where, after an unsuccessful attempt to break down adhesions, the molar teeth on the left side were removed in order to allow the patient to be fed. Her appetite during the three years had been very large but she remained very thin. At the North-West London Hospital in November last Mr. Clarke exposed the right temporo-maxillary joint by an incision planned to avoid the trunk of the facial nerve, the parotid duct, the superficial temporal artery, and other structures near the joint, and removed the whole of the neck of the bone. The result of the operation was entirely satisfactory. After a few days the patient could masticate food. On leaving the hospital 14 days after the operation, the patient had gained six pounds in weight although she was now satisfied with a smaller quantity of food. At the present time she could open the mouth more than an inch. Mr. Clarke referred to another case in an adult with bilateral ankylosis where he had performed similar operations on both sides. In this case an equally good result was obtained and up to the present time, nine months after the operation, the patient had improved rather than otherwise, having by exercise obtained a greater power of protruding the jaw.—Mr. ARTHUR BARKER remarked that the improvement in these cases was a permanent one. It used to be thought that stiffness due to synostosis occurred even after operation, but that was in pre-antiseptic days, and Mr. Clarke's case reminded them that this synostosis did not occur under modern aseptic methods. He referred to a case of a child who had suppurative mischief in the joint at the age of five years on whom he had operated successfully at the age of 14 years. Mr. Clarke's case was also interesting from the fact that there was not much muscular atrophy on the side of the operation, as there had been in some cases which he had seen.—Mr. CLARKE, in reply, referring to the prognosis in these cases, hoped that the facial contour would improve in time, that the bone which now lagged behind would come forward, and that the muscles would fill out.

Mr. FREDERIC S. EVE exhibited a case of Arthrectomy of the Knee for tuberculous disease with restoration of movement. The patient was a girl, 13 years of age, who was admitted to the Evelina Hospital with all the usual signs of strumous disease of the knee. For six weeks she was treated with Scott's dressing and strapping, the limb being placed on a splint. No improvement resulting, on June 13th Mr. Eve performed a complete arthrectomy, removing the whole of the thickened synovial membrane. A thin slice was removed from the extremity of the internal condyle where the cartilage was destroyed. The lateral and crucial ligaments were carefully preserved, but the semilunar ligaments were removed. The incisions in the capsule were brought together by silk sutures. A month after the operation the adhesions were broken down under chloroform, and from that time passive movement was kept up on two or three occasions under anæsthetics. The limb was now quite straight and firm, the knee could be flexed to a right angle, and the patient walked firmly and evenly upon it. She wore a splint every night to obviate the tendency which these joints sometimes had after arthrectomy to flexion. He thought that after a period of one month was the best time to begin to start passive movement. If less time than this were allowed too much movement resulted and if more, fibrous adhesions might occur.—Mr. ARTHUR BARKER congratulated Mr. Eve on the success of this case. It realised the desire which surgeons always had in these cases to preserve the movement of the joint. This seemed to be an exceptional success, but he hoped that one day such results would become more frequent.—Mr. CHARTERS SYMONDS hoped that the sanguine view expressed about the future of such cases would be realised. He had recently seen a similar case on which he had operated six years before, and the patient, now between 16 and 18 years of age, suffered a great deal of pain in the joint. When these joints had been used for awhile they sometimes gave rise to considerable pain and the permanent benefit was not always realised.—Mr. J. HUTCHINSON, jun., had in two cases succeeded in getting a range of 30°, but he had never seen so much range of movement as in Mr. Eve's case.—Mr. J. JACKSON CLARKE also thought the result exceptionally successful, for the operation of arthrectomy required considerable selection, and only some cases were suitable. Moreover, the results from the older methods of treatment were not altogether discouraging, and he mentioned some cases in point.—Mr. FREDERIC EVE, in reply, said that the case had been distinctly of the subacute variety of tuberculous disease of the joint, one in which fibrous tissue was undoubtedly forming in the synovial membrane.

Mr. FREDERIC EVE and Mr. HUGHES R. DAVIES showed a case of Resection of the Lower Third of the Radius and Ulna with Myeloid Sarcoma of the Lower End of the Radius. The patient, a woman, aged 21 years, fell and sprained her wrist in June, 1898. In the following September a swelling appeared at the lower end of the right radius; this gradually increased and when seen in February, 1899, there was a typical myeloid sarcoma of the lower end of the bone. On March 4th, 1899, the lower thirds of both radius and ulna were excised by Mr. Eve and all the tendons around the wrist were divided, shortened, and sutured. At the end of six weeks she could write her name and could now write well, use her hands for dressing, meals, and for all ordinary purposes. She could also grasp firmly with the fingers any articles such as a glass or a pen and play the piano by the aid of a leather splint.

Dr. VOELCKER showed a case of the Hereditary Ataxy of Friedreich in a boy, aged 12 years, who had been under his observation since August, 1896. There was no family history of any nervous disorders. When the patient was five years of age he was said to have had "German measles" and congestion of the lungs, after which he had St. Vitus's dance, which left him helpless. Since then he had had tremors. When he was first seen in 1896 he was a rather undersized boy, and there were irregular tremors of his head, tongue, and upper limbs, the left side being worse than the right side, and he had well-marked Romberg's sign, but no nystagmus. The pupils were equal and reacted to light and accommodation. There was no ocular palsy. Sensation to touch and pain was normal. Coördination was very imperfect. The speech was rather thick. Knee-jerk was not obtained. The patient had no trouble with micturition or muscular wasting. In November, 1897, ophthalmoscopical examination showed atrophy of both discs with old retino-choroiditis and some opacities in the vitreous. In January, 1899, his colleague, Mr. Donald Gunn, reported that the changes in the fundi were briefly those of an old syphilitic retino-choroiditis. During 1899 he had an attack of herpes labialis to which he had been liable. In November, 1899, it was noted that on tickling the soles the great toes were extended. For the last three weeks the unsteadiness had increased and his handwriting had become more shaky.—Mr. J HUTCHINSON, jun., asked on what evidence the condition of the fundi oculorum was regarded as syphilitic. He was not satisfied that because there was atrophic retino-choroiditis the lesion was necessarily of syphilitic origin.—Dr. VOELCKER, in reply, said that he based his statement as to the syphilitic nature of the eye lesion on the opinion of his colleague, Mr. Donald Gunn.

Dr. H. BATTY SHAW exhibited a case of Erythro-melalgia which was under the care of Dr. J. Rose Bradford. The patient was a man, 29 years of age, in whom there was obviously poor circulation. Both radial pulses were small and he also exhibited coldness and blueness of the nose. He had met with an injury from a cricket-ball on the left wrist six years previously, but had made a good recovery. Three years ago he noticed that the left hand and wrist were becoming red, painful, and swollen. After this the condition had progressively increased with exacerbations from time to time until the present state had been reached, in which the left hand was of a deep purple colour, much swollen and œdematous. The lividity, but not the œdema, extended to the elbow-joint. He suffered a good deal of pain, which presented the unusual feature of being worse in warm weather. It was also worse when the arm was raised or when he exerted himself. The sensation and electrical reaction were quite normal. The patient wished to have the arm amputated on account of the pain in it and its uselessness.

Mr. ARTHUR BARKER showed a man in whom he had removed the Tongue, the Floor of the Mouth, and the Symphysis of the Jaw for a Malignant Disease five years

ago. The glands had been removed at a subsequent operation. As far as could be seen there was no recurrence anywhere. The patient could not chew on one side, but otherwise he was perfectly well. The case, he thought, was very encouraging.

Mr. BARKER also showed a case of Fractured Patella occurring in a man who had been admitted into the hospital three weeks previously. There was very little sign of injury and the fracture, which was the result of direct violence, might have been overlooked had it not been for the Roentgen rays. The skiagram showed an extensive stellate fracture of the patella.

BRITISH GYNÆCOLOGICAL SOCIETY.

Annual Meeting.—Election of Officers.—President's Valedictory Address.

THE annual meeting of this society was held on Jan. 11th, Dr. MACNAUGHTON-JONES, the President, being in the chair.

The TREASURER presented his annual report and received a vote of thanks which was proposed by Mr. STANMORE BISHOP, seconded by Dr. HERBERT SNOW, and carried unanimously.—A vote of thanks to the retiring officers was moved by Dr. HEYWOOD SMITH, seconded by Dr. T. M. DOLAN, and carried unanimously.—The scrutineers reported that the officers and council for 1900 had been elected as follows: Honorary President: Dr. R. Barnes. President: Dr. W. J. Smyly. Vice-Presidents: Mr. W. Armstrong, Dr. Clement Godson, Dr. R. H. Hodgson, Mr. F. Bowreman Jessett, Dr. Skene Keith, Dr. L. Landau, Dr. J. Macpherson Lawrie, Dr. J. J. Macan, Dr. R. Milne Murray, Dr. James Oliver, Dr. A. Pinard, and Dr. R. D. Purefoy. Treasurer: Dr. J. A. Mansell Moullin. Council: Dr. W. Alexander, Dr. W. H. Bourke, Professor Murdoch Cameron, Dr. John Campbell, Mr. G. Roe Carter, Dr. John H. Dauber, Dr. T. Eastes, Mr. J. Furneaux Jordan, Dr. George E. Keith, Dr. H. Macnaughton-Jones, Dr. T. Morton, Dr. W. H. Newnham, Dr. J. Inglis Parsons, Professor A. W. Mayo Robson, Dr. F. W. Ramsay, Dr. C. H. F. Routh, Dr. F. F. Schacht, Dr. W. Japp Sinclair, Dr. W. Slimon, Dr. Heywood Smith, Dr. R. T. Smith, Mr. J. W. Taylor, and Dr. W. Travers. Editors of the Journal: Dr. J. J. Macan, Dr. Arthur E. Giles, and Dr. H. Macnaughton-Jones, jun. Honorary Secretaries: Dr. Arthur E. Giles and Mr. Charles Ryall. Trustees of the property of the society: Dr. G. Granville Bantock, Dr. Fancourt Barnes, and Dr. Clement Godson.

The PRESIDENT then delivered his valedictory address on the Correlation between Sexual Function and Insanity and Crime. He said that he wished to inquire how far the process of menstruation affected a woman by originating morbid impulses in the various groups of her pelvic nerves which find their response in reflected neuroses in other organs and thus influence the coherence and stability of her nervous acts. Or, again, in what directions and to what extent the normal fulfilment of ovulation with menstruation developed for the time being erotic impulses, encouraged the state of neurosis generally, or so lowered the psychical and physical inhibitory control as to lead to a hyper-exaltation of the entire nervous system, with increased susceptibility to slight irritations and a weakened will-control that permitted of distorted mental visions and erratic moral acts, vulgarly called crimes, that the woman was helpless to evade or subdue. To elucidate these points he proceeded to inquire whether there was evidence that menstruation, both normal and abnormal, did so influence the woman, and under what conditions it was most likely to do so; and secondly, how far disease of the sexual organs in women was correlated with symptoms of alienation from slight interferences with their mental equilibrium to more profound disturbances, such as melancholia, dementia, or mania. This in turn led to the consideration how far removal of the diseased organs by operation was salutary or otherwise to the woman and to what extent the operation in itself might on the one hand mitigate or on the other hand increase the mental trouble. After discussing these points from the physiological, clinical, and statistical sides he summed up his conclusions as follows: 1. That the correlation of insanity and disordered sexual function arising out of affections of the generative organs was a factor to be taken into serious consideration in the treatment of the mentally afflicted. 2. That where there was ground for the suspicion that some physical condition of the uterus or adnexa existed which might produce or aggravate the mental affection a careful examination, under an anæsthetic if necessary, should be made. 3. That in the investigation of criminal acts committed by women, either during the menopause or while the menstrual function was either active or suppressed, due weight should be given to the influence exerted by its irregularity or abeyance on the mind of the woman; in doing this her previous history and temperament should be considered. 4. That the special dangers of the climacteric period should be remembered and the symptoms indicative of threatening climacteric mania recollected. The principal of these were moroseness and depression of spirits, attacks of hysteria, occasional hallucinations, delusions with regard to relations, unjust dislikes, unfounded apprehensions of some grave crime committed or injury inflicted on them, and suicidal tendencies. 5. That in operations on the female generative organs there was a greater predisposition to mental disturbance than after other operative procedures. 6. That women who have been previously insane were predisposed to a relapse by the development of disease in their sexual organs, and especially to such recurrence of insanity after operation on these organs. Under all such conditions and in the face of these warnings the greatest supervision and care were required to anticipate the insane impulse and to prevent suicide or crime in the case of women who manifested symptoms that were due to a correlation between disorders of sexual organs and mental instability.

A hearty vote of thanks to the retiring President for his interesting and important address was moved by Dr. C. H. F. ROUTH, seconded by Dr. W. J. SMYLY, supported by Mr. E. STANMORE BISHOP, and carried unanimously.

EDINBURGH OBSTETRICAL SOCIETY.

Albuminuria, Multiple Pregnancy, Papyraceous Fœtus, and Placenta Prævia.—Differentiation of Connective Tissue in the Human Fœtus.—The Early Changes at the Caudal End of the Primitive Gut in Human Embryos.—Exhibition of Specimens.

A MEETING of this society was held on Jan. 10th, Dr. MILNE MURRAY, the President, being in the chair.

Dr. JAMES RITCHIE read a paper on Albuminuria, Multiple Pregnancy, Papyraceous Fœtus, and Placenta Prævia. The patient was aged 32 years and was pregnant for the second time. At five months she was complaining of severe headache, breathlessness on exertion, and debility. There was considerable œdema over the body and the urine, which was scanty, was found to contain a large amount of albumin, but it contained no tube-casts or blood. The treatment adopted was rest in bed, free action of the bowels, a teacupful of water or whey every two hours, no other food, and 15 grains of sodium bromide four times a day. In a few days there was marked improvement so that milk-and-water could be given and later some toast. The progress made was very satisfactory and only a trace of albumin was left. In the seventh month there was slight hæmorrhage followed by sharp flooding on the next day. The os was found to be partially dilated and a firm wedge of placenta extruded. As there was no further hæmorrhage the progress was left to nature. The fœtus, evidently about five and a half months, when born was found to be macerated. The placenta was found to consist of one mass, but there was a firm smaller exsanguine portion. The membrane consisted of two sacs, a larger and a smaller; the latter nearer to the os uteri contained a small flattened fœtus. A succenturiate portion of placenta was expelled next day and later some further shreds. For several weeks before confinement the amount of albumin in the urine was small and yet the nutrition of the fœtus was so impaired that it died. The albuminuria of pregnancy occurs independently of heart or kidney disease. Its occurrence during one pregnancy does not indicate that it will recur during subsequent pregnancies. It is due to some condition peculiar to the pregnancy involved—probably some unusual condition in the relation of the products of conception to the mother. It is associated with the development of an unusual toxic condition of the blood. Although a micro-organism has been described in connexion with eclampsia—a planococcus—it has not yet been proved to have a causal relation. The cause of the albuminuria of pregnancy is peculiarly

prejudicial to the nutrition of the fœtus and the severity of the result is not in proportion to the amount of albumin in the urine. Beyond these facts we are still in ignorance of the pathology of the disease and therefore our treatment cannot yet be founded on a secure basis. The bowels should be cleared out. To favour elimination and to increase action of the kidneys nothing is better than water or whey. There is usually a pulse of high tension in these cases and so digitalis is harmful. For the headache a sinapism to the nape of the neck may be used, and bromides may be given for the sleeplessness. After there is a copious flow of urine milk or milk and water may be given. Rest in bed is helpful by diminishing the amount of food necessary to the waste of exercise. After improvement the diet may be increased by other foods if it is found that the change has no effect in increasing the albumin which may be present in the urine.—Professor A. R. SIMPSON, Dr. BERRY HART, Dr. H. M. CHURCH, Dr. J. W. BALLANTYNE, Dr. KEPPIE PATERSON, Dr. MCVIE, and Dr. MILNE MURRAY discussed the paper.

Dr. BERRY HART read a paper on the Cause of the Differentiation of Connective Tissue in the Human Fœtus, with special reference to the essential nature of Hydatid Mole. Dr. Hart first discussed the development of connective tissue, especially in the myxomatous stage and went on to the fully developed type. He pointed out that the myxomatous stage was permanent for the umbilical cord, that the tissue in the villi fell short of fully developed connective tissue, while that in the rest of the fœtus went on ultimately to the higher form. He believed that the relation of the thyroid to myxœdema in the adult, as well as the structure and the evidence of activity of the thyroid in the fœtus, made it highly probable that Semon's theory was applicable in fœtal life, that, in fact, the thyroid secretion favoured the development of connective tissue from the myxomatous to the higher type. He pointed out that the umbilical cord was not vascularised, that the thyroid secretion did not affect it, and thus it remained of a mucous type. He applied the same reasoning to explain the condition of the connective tissue in the villi and in the vitreous humour. He summed up as follows: 1. There is anatomical and clinical, but not as yet experimental, evidence that the thyroid is functionally active in the human embryo. 2. It begins to develop in fœtuses of four millimetres—that is, about the third week. 3. It probably causes the development of connective tissue to pass from the myxomatous to a higher stage. Thus (*a*) the cord without vessels and presumably without thyroidisation remains myxomatous; (*b*) the adult vitreous under the same conditions remains allied to myxœdematous tissue; and (*c*) tissues like the villi are also more or less myxomatous according to their age and length of exposure to vascularisation. 4. The free covering of the somatopleure is also probably affected by the thyroid. 5. The hydatid mole may be regarded as acute myxœdema of the chorion. 6. Thyroid extract should be administered after hydatid mole abortion. In the hydatid mole we have a mass of tissue of a myxomatous type with, in almost every case, no fœtus. He believed, therefore, from the evidence which he had brought forward that this view of the myxomatous nature of the chorion was a highly probable one. Dr. Berry Hart's paper was illustrated by numerous microscopical specimens.—Dr. MILNE MURRAY, Professor SIMPSON, and Dr. BALLANTYNE took part in the discussion on the paper.

Dr. HART then gave a demonstration on the Early Changes at the Caudal End of the Primitive Gut in Human Embryos and its bearing on a case of persistent end-gut in an infant and an extroversion of the bladder, illustrated by several models and diagrams.

Professor SIMPSON showed Specimens removed from a patient who had been sent to the Maternity Hospital from the country. On admission there was found crepitation in the left groin; the vagina and cervix were severely torn, and the vulva was swollen. There was a narrow brim and as the fœtus was alive it was decided to perform Cæsarean section. This was done and the uterus was amputated above the ligature by Porro's method. The child, which was alive, died soon after evidently from fracture of the frontal bone due to forceps action. The mother died in a few days from general peritonitis.

Dr. J. W. BALLANTYNE showed an Abdominal Teratoma which had been removed by operation from an infant two months old. It was situated in the lesser cavity of the peritoneum, being attached by numerous adhesions to the surrounding parts. It contained skin, fat, pieces of intestine, &c.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 19th, the President, Mr. W. J. Horrocks, jun., being in the chair.—Dr. J. Kerr showed a case of Extensive Wound of the Eyeball extending through the Ciliary Region. There had been sympathetic irritation of the opposite eye but this had subsided, leaving good vision. The injured eye had not been removed but the prolapsed iris was snipped off and the lens washed out immediately after the accident.—Dr. F. W. Eurich showed a series of Microscopic Sections illustrating the Commoner Diseases of the Breast.—Dr. T. W. Hime showed a specimen of the Bacillus of Bubonic Plague.—Dr. C. F. M. Althorp showed a patient who had been treated by laparotomy when suffering from Tuberculous Peritonitis. The patient was in good health.—Mr. P. E. Miall read a paper on Contagion in Modern Times. (The paper was a continuation of one previously communicated to the society on the ancient ideas of contagion.) In the Middle Ages many diseases were considered to be contagious, but some of them were also traced to other causes. Epidemics, for instance, to poisoned air, which idea did not tend to promote ventilation; to putrefaction from internal causes, what they now sometimes called auto-infection; to the influence of stars, planets, eclipses, earthquakes, and volcanoes; and to famine or too great plenty, and to supernatural beings. Sometimes there was a strange mixture of natural and supernatural causes. There was little attempt to define the influence of the various agencies. Diseases were equally indefinite, but Rhazes in his description of small-pox and measles had introduced the specific element which ultimately altered the whole aspect of the matter. Leprosy was a prominent example of contagious disease, but it diminished in importance after the epidemic of syphilis at the end of the fifteenth century. No doubt the two had often been confounded. The great plague of 1348, since known as the Black Death, drew much attention to the subject of contagion. Many fevers that we should now call typhus and consider to be contagious were then looked upon as caused by chills or other causes. Small-pox was by no means thought to be infectious at all times and places and even plague was doubtful to some authorities. What appeared to them an extreme reluctance to admit contagion was sometimes shown, some preferring to attribute a large mortality to fear alone. In this matter there had always been sceptics, their minds continually asking "How?" and "Why?" and not being satisfied with mere contact as a cause in the absence of some far-reaching theory to explain the *modus operandi*.—Dr. Basil Hall read a paper on Tuberculous Disease of the Great Trochanter and read reports of three cases.

LIVERPOOL MEDICAL INSTITUTION.—At the annual meeting held on Jan. 11th the following list of office-bearers and committees was adopted:—President: Mr. Edgar A. Browne. Vice-Presidents: Dr. A. Bernard, Dr. T. B. Grimsdale, Dr. T. R. Bradshaw, and Mr. W. Thelwall Thomas. Honorary treasurer: Mr. H. Briggs. Honorary general secretary: Dr. J. M. Hunt. Honorary secretary to ordinary meetings: Dr. John E. Gemmell. Honorary librarian: Dr. W. Permewan. Council: Dr. W. Alexander, Mr. R. A. Bickersteth, Mr. T. M. Dawson, Dr. A. Burns Gemmel, Dr. J. J. O'Hagan, Dr. A. M. Paterson, Dr. W. Macfie Campbell, Dr. James Armstrong, Mr. Owen Bowen, Mr. Andrew Stewart, Mr. W. T. Clegg, and Dr. J. C. M. Given. Auditors: Dr. A. Burns Gemmel and Mr. Charles G. Lee. Pathological and Microscopical Committee: Dr. J. H. Abram, Dr. F. H. Barendt, Mr. R. A. Bickersteth, Dr. R. J. M. Buchanan, Dr. A. W. Campbell, Mr. F. C. Larkin, Dr. C. J. Macalister, Mr. G. P. Newbolt, Mr. Frank T. Paul, and Dr. C. S. Sherrington. Journal Committee: The Honorary Secretaries to ordinary meetings and pathological section, Dr. F. H. Barendt, Dr. T. B. Grimsdale, Mr. F. C. Larkin, Mr. Charles G. Lee, Dr. C. J. Macalister, Mr. G. P. Newbolt, and Dr. W. Permewan.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.—The fourth meeting of this society was held in the Medical Library of University College, Bristol, on Jan. 10th, Mr. W. H. Harsant, the President, being in the chair.—Dr. G. Parker showed a specimen of Aneurysm of the Aorta.—Dr. Shingleton Smith, Dr. P. W. Williams, Dr. T. Fisher,

Dr. Michell Clarke, and Mr. J. L. Firth discussed the subject.—Dr. T. Fisher showed the following specimens: (1) Intestine from a case of Idiopathic Intestinal Hæmorrhage; (2) two cases of Congenital Dilatation of the Colon; (3) Ulceration in a Strangulated Portion of Small Intestine; (4) Enlarged Spleen and Cirrhotic Liver; (5) Cirrhosis of the Liver; and (6) Fibroid Disease of the Heart due to Syphilis.—Dr. Stack and Dr. Michell Clarke discussed the specimens.—The President showed a Large Fibroid of the Uterus recently removed by Abdominal Section.—Dr. A. E. Aust Lawrence read a paper on Cases of Vascular Caruncle of the Female Urethra.—Dr. W. C. Swayne, Dr. W. H. C. Newnham, Mr. Ewens, Dr. Stack, and the President spoke on the subject.—Dr. W. C. Swayne read a paper on Notes of a Case of Symphysiotomy.—Mr. Paul Bush, Dr. Aust Lawrence, and Dr. J. G. Swayne made some remarks on the operation.

CARDIFF MEDICAL SOCIETY.—At the monthly meeting of this society, held on Jan. 4th, Sir John Williams, M.D., delivered an address on Some Points connected with the Induction of Premature Labour. The meeting was a large one, between 50 and 60 gentlemen from Cardiff and the neighbourhood being present. The address was of great interest and of an extremely practical character. The lecturer dealt with various points necessitating the induction of labour, more particularly albuminuria present before and coming on during pregnancy, illustrating his remarks by reference to various cases that had been under his care.—A vote of thanks to Sir John Williams was proposed by Dr. C. T. Vachell, seconded by Mr. W. W. Leigh, and carried with acclamation.—In the evening members of the society and friends, numbering 35, dined together at the Angel Hotel, Dr. P. Rhys Griffiths, President, being in the chair.—After the toast of "The Queen," the health of Sir John Williams was proposed by Mr. Ebenezer Davies of Swansea, of whom Sir John Williams was a pupil in his early days.—Sir John Williams suitably replied.—Various other toasts followed and a most enjoyable evening was spent.

Reviews and Notices of Books.

Archiv für Dermatologie und Syphilis. Band I., Hefte 1, 2, und 3. October, November, and December, 1899. Vienna: W. Braumüller.

THE original articles in the October number are:—1. Syphiloderma Hæmorrhagicum Adultorum, with coloured histological plate, by Dr. Piccardi, working in Peroni's Poliklinik in Turin. The hæmorrhage is produced by the wandering of blood corpuscles through the degenerated vessel walls and by rupture of the capillaries. 2. W. Wechselmann contributes an article on the Eruptions produced by Antipyrin. 3. An interesting article by Felix Pinkus on the Skin Changes in Lymphatic Leukæmia and Pseudo-leukæmia, with one photographic and four coloured histological plates, which is to be concluded in a future number. 4. On the Bacteria found in Pemphigus Vegetans, together with the Differential Diagnosis between Diphtheria and Pseudo-diphtheria. 5. A Further Communication on the Etiology of Ecthyma Gangrænosum, by F. Hitchmann and Karl Kreibich, with clinical and histological plates. This is the affection known in England as the multiple gangrene of children and the ecthyma térébrante of French authors. In their first communication in 1897 they, as Ehlers had previously done, found the bacillus pyocyaneus in the lesions, and here they confirm their previous view that it is the pathogenetic organism. Paul Witte's concluding article is on the Pathogenesis of Gonorrhœal Epididymytis. Altogether it is an exceptionally good number.

Heft 2 (November, 1899) of the same volume treats of 1. Endothelioma of the Skin, by E. Spiegler, a valuable contribution, with two excellent coloured and four uncoloured plates of the interesting tumours which occupy the whole scalp like a cap, of which the first recorded case was by Ancell in the Transactions of the Royal Medical and Chirurgical Society for 1842, reproduced in Plate XC. of Hutchinson's smaller Atlas, and others in Plates CXIX. and CXX. 2. The conclusion of Pinkus's paper on Leukæmia of the Skin. His conclusions are important and interesting but too long for quotation beyond saying that he admits the close connexion of the lymphodermia perniciosa type of mycosis fungoides with leukæmia cutis, but would separate it from the true mycosis fungoides. 3. Natanson writes on the Structure of Cutaneous Horns *apropos* of one on the Eyebrow. 4. Kreibich in writing on the Histology of Pemphigus of the Skin and Mucous Membranes states that pemphigus arises on previously inflamed skin. The paper is not concluded. 5. Almkvist advocates largin (one of the new silver albumin compounds) for gonorrhœal ophthalmia. 6. Uhma treats of a rapid colouring method for gonococci in fresh unfixed preparations.

In Heft 3 (December, 1899) of the same volume the first article is by Himmel on the good effect of the Roentgen Rays on Lupus and their Action on the Skin and its Appendages with a Histological Plate. Rona records two cases of Epidermolysis Bullosa followed by Atrophy of the Skin and Arrest of Nail Growth. F. Pinkus relates a case of Alopecia Congenita or, as he calls it, Hypotrichosis. Juliusberg describes a case from the Breslau Klinik of a psoriasiform-lichenoid eruption—a condition allied to, if not identical with, the parakeratosis variegata of Unna. Kreibich concludes his long paper on the Histology of the Skin and Mucous Membrane begun in Heft 2. Finally, there is a short article by Orbaek on Lichen Atrophicus (of Hallopeau) and Vitiligo. He relates a case of the former and gives the bibliographical history.

All the numbers have the usual *précis* of current dermatological work and literature and reports of societies and show that in spite of rivals the journal holds its own as the leading German periodical on dermatology and syphilis.

The Western Rajputana States: a Medico-Topographical and General Account of Marwa, Sirohi, Jaisalmir. By Lieutenant-Colonel ARCHIBALD ADAMS, I.M.S., M.D., M.Ch. R.U.I., F.R.C.S.Irel., Administrative Medical Officer in Rajputana. With Illustrations. Junior Army and Navy Stores, Limited, York House, Regent-street, London, S.W. 1899.

THIS large and handsome volume of some 450 pages relating to a picturesque and interesting country is copiously illustrated with plates and furnished with many tables. It owes its publication to the fact of its author having been officially directed to write a medico-topographical account of the Western Rajputana States. He has, and very successfully, endeavoured to adapt his official report and increase its interest for general readers by introducing into it a brief history of the rulers of the country and a reference to some of the customs and modes of thought of a people amongst whom, he tells us, he has worked for 18 years. Particular attention, the author states in a brief preface, has been given to the fauna and flora of the country and to the legends and superstitions of the people.

A considerable portion of the volume is taken up with a geographical and topographical account of Marwa, or as it is often called, after its capital, Jodhpore, Sirohi, and Jaisalmir, which together comprise the Western Rajputana States. In order to indicate the care with which Lieutenant-Colonel Adams, I.M.S., has gone about his work we may say that the plan which he has followed is to give a brief general description of the country, its physical aspects, products—mineral and otherwise—population, religions, agriculture, industries, exports and imports, climate, and medical history. This is, in turn, succeeded by a short history of the three States respectively, together with a description of their capitals and principal points of interest and the proverbs current among the people; and further by such

subjects as public instruction, water-supply and sanitation, principal fairs, history of famines, food-supplies, game, natural history, and a medical summary of the principal diseases, epidemiology, jails, and meteorology. These are separately taken up and discussed or described in more or less detail, but at the same time in an interesting and very readable way. The illustrations interspersed throughout the volume really serve to illustrate and enliven the text and help the reader to realise the natural scenery, the peoples, palaces and buildings, some of which are of much architectural beauty and elegance, and the various animals and plants that are indigenous to, or to be found in, the country. We had marked several passages in the volume for quotation but the work does not easily lend itself to any adequate idea of its contents being derived from brief quotations from its text. The author has brought his information up to date, as may be seen by his reference to the history of plague in these States and to the recent researches of Major R. Ross, I.M.S., on the part played by certain species of mosquito in harbouring the malarial parasite during a part of its existence and in the communication of malarial fevers to man and animals liable to these diseases. The author's remarks and comments on these and other medical subjects are judicious. We have been much interested in the perusal of this volume, for it is well done, and full of information which is pertinent to the subject and not to be obtained elsewhere. We must add, too, that it is admirably got up, illustrated, and printed.

Diseases of the Eye: a Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. DE SCHWEINITZ, A.M., M.D., Professor of Ophthalmology in the Jefferson Medical College; Ophthalmic Surgeon to the Philadelphia Hospital. With two Chromo-lithographic Plates and 255 Illustrations. Third edition, thoroughly revised. London: Rebman. 1899. Pp. 696. Price 24*s.*

THIS, the last edition of a well-known text-book, is brought up to the present date by the addition of a not inconsiderable amount of new matter and by a thorough revision of the old. It is beautifully printed and richly illustrated. It is certainly well adapted for the use of students since it is very plainly and practically written by one who has had large experience in teaching and is familiar with the conditions which he describes. Amongst the additions that have been made Dr. Schweinitz notices the employment of the Roentgen rays and remarks that if a foreign body is known to be of iron or steel an attempt should be made to dislodge it with an electro-magnet introduced through the entrance wound, or, if the case is not a recent one, through a wound made for the purpose. He then goes on to say: "With an x ray photograph as a guide this is a comparatively simple procedure." We would venture to recommend the student not to expect too much from the simplicity of the procedure if the fragment be small and deeply located. It is stated in the preface that a special paragraph appears in this edition on the subject of favus of the eyelids, but on turning to the page in which it is referred to we find that the special paragraph is: "Favus in the form of dirty yellowish-white crusts occasionally appears upon the eyelids," which we submit supplies the smallest amount of information that could be given in a paragraph to which special attention is called by the author in the preface of his book. Other paragraphs, however, which appear for the first time in this edition are not liable to the same reproach.

The several forms of conjunctivitis, the etiology of which has been more or less perfectly ascertained, are satisfactorily described. Thus, a form of subacute conjunctivitis, which is sometimes chronic, and which is associated with a diplobacillus, was distinguished by Morax and has been particularly studied by Dr. Harold Gifford in America. The disease, Dr. Schweinitz tells us, is insidious in its character, runs a course which may last for six months, and is believed to be caused by a diplobacillus often occurring in chains. The affection seems to be best treated with zinc sulphate. A good account is given of Parinaud's conjunctivitis, which has also been named lymphoma of the conjunctiva by Goldzieher. This affection was thought by Parinaud to be attributable to some infection of animal origin and is characterised by the appearance after a week of swelling and discharge of large polypoid granulations, between which the mucous membrane is ulcerated. The lymphatic glands of the same side enlarge and may suppurate. One eye only is, as a rule, affected and the disease may last from one to several months. No peculiar micro-organism has been found. Antiseptic collyria and removal of the granulations are recommended as appropriate treatment. The relations of the diseases of the cornea to the various forms of micro-organism are fully given. After noticing the various associated conditions which have been observed in these cases, such as carious teeth, disease of the lacrymal passages, and numerous others, the author concludes by endorsing the statement of Harrison Allen that the entire cephalic mucous membrane should be explored because in one or other of its component parts it may be the seat of disease which, even if it is not the cause of the co-existing corneal ulceration, is none the less responsible for retardation in the healing process. The form of keratitis that is observed amongst oyster shuckers is described and it is stated, on the authority of Dr. R. Randolph, that the disease depends upon the irritating chemical ingredients in the shell and not upon micro-organisms. A section is also devoted to the condition described by Leber as hereditary atrophy of the optic nerve which may appear for a number of generations almost exclusively in the male members of the family, although it is often transmitted through the female line. It is said to commence in general between the eighteenth and twenty-third year. It has been particularly investigated by Dr. W. Norris who describes a stage of œdema and congestion of the disc, a stage of grey discolouration of the optic disc and a stage of pronounced atrophy. The subject of Retro-ocular Neuritis is considered by the light thrown upon it in the discussion which took place in 1897, the report of which is contained in the Transactions of the Ophthalmological Society of the United Kingdom. Other sections of the volume have been either re-written or large additions have been made.

With this book in their hands and the still larger text-book of the Eye, Ear, Nose, and Throat, edited by Dr. Schweinitz and Dr. Randall, also published in Philadelphia, to which we have recently called attention, the students of Jefferson College have their ophthalmic education very completely provided for.

Nursing: its Theory and Practice. By PERCY G. LEWIS, M.D.Brux., M.R.C.S.Eng., Honorary Medical Officer to the Victoria Hospital, and Honorary Surgeon to the St. Andrew's Convalescent Hospital, Folkestone. Thirteenth thousand. Enlarged and revised throughout. London: The Scientific Press, Limited. 1899. Pp. 428. Price 3*s.* 6*d.*

THIS volume is intended as a complete text-book of medical, surgical, and monthly nursing. It is not in any way intended to be a substitute for practical instruction in the wards, but to bring clearly before nurses an idea as to the essential points in the symptoms and course of various diseases, the possible complications that may arise, and the duties of a nurse throughout her attendance on a case, either in the wards of a hospital or in private.

It is of advantage to a nurse to have some theoretical

knowledge of diseases, but at the same time it must be thoroughly impressed upon her that she is at no time to act as an amateur medical practitioner. Dr. Lewis has shown a wise discretion in the manner in which he has described the main symptoms which arise from disease of the various systems of the body, and a nurse is not likely to err or to exceed the duties of her office if she follows the author's directions. The chapters devoted to the nursing of surgical cases are particularly good, and numerous illustrations are given which considerably aid the technical descriptions of bandaging and the nursing required after surgical operations. The remarks, too, on the management of midwifery cases will be found well worthy of perusal by nurses who intend to take up that particular branch.

The volume, as a whole, is one of the most complete which we have met with on the subjects on which it treats and doubtless the success which has already attended it will be continued through this new edition.

Experimental Physics. By EUGENE LOMMEL. Translated from the German by G. W. MYERS, of Urbana, Illinois, U.S.A. London: Kegan Paul, Trench, Trübner, and Co. 1899. Pp. 664. Price 15*s.* net.

THE experimental method is undoubtedly the best means for the young student of gaining a knowledge of physics. In spite of the mathematical considerations which a knowledge of physics involves it is remarkable with what simple apparatus a great number of instructive experiments can be made. The work before us aims at simplifying the experimental work without sacrificing what is essential, and the plan adopted is to present as far as possible the subject in historical sequence which in the author's opinion is "the surest way to a vivid understanding and vital appreciation of present attainment." We quite agree that this plan is the best, especially for those students to whom the subject is comparatively new. The book has grown out of the writer's lectures on experimental physics at Münich and the translator was an attendant at these lectures, where he became so impressed with the clear and complete way in which the principles were expounded in the present text-book as to undertake the work of translating it. In this undertaking he has been fairly successful, though in certain chapters the evidence of literal translation is apparent. This, however, does not detract from the educational value of the translated edition, for the clear and lucid style of the original work is in a large measure preserved. To some extent the mathematics of the subject are separated from the practical portion by being inserted in paragraphs in small print. In this way the beginner may, if he choose, temporarily ignore complex formulæ and master first the facts. In adopting this course the translator has followed the plan of the author. The book contains ten chapters. The introduction is devoted to the definition of physics and to the units of measurement. The order in which the subjects are treated is that generally adopted in Germany and being based as far as possible on the historical development of the subject is of interest. Thus, first, is discussed motion or mechanics; then, secondly, solids; thirdly, liquids; and fourthly, gases. In the succeeding chapters the phenomena of heat, magnetism, electricity, sound, and light are severally described. The work is fully illustrated, containing more than 400 figures in the text. These illustrations are not very striking and are on a very reduced scale. In this respect the work does not compare favourably with Professor Everett's translation of Deschanel's Natural Philosophy or with Ganot's Physics. Nor is the work free from defects in the text. On page 323, for example, the author speaks of a peculiar odour resembling that of phosphorus occurring in the neighbourhood of an electrical machine. Phosphorus has no odour. On the following page "oxone" is clearly a misprint for "ozone." On page 347 occurs the following sentence: "The alkalies and the earths were supposed to be undecomposable until Davy in 1807 succeeded in obtaining from moistened calcium hydroxide (KOH) brilliant little globules of the metal calcium (K and H at the cathode and O at the anode) of the lustre of silver." There is a curious muddling here of calcium with potassium. In speaking of the radiometer it is stated that "this apparatus was devised by Crooke," and elsewhere the author speaks of "Crooke's tubes." Another slip occurs on page 573, where for "cyanate" the author evidently means "cyanide." Doubtless these mistakes will be rectified in a future edition, and since the original work has reached the third edition there is no reason why the translation should not have a popularity equal to that of which this fact gives evidence.

Practical Text-book of Midwifery for Nurses and Students. By ROBERT JARDINE, M.D. Edin. Edinburgh: W. F. Clay. 1899. Pp. 245, with 36 Illustrations. Crown 8vo. Price 6*s.*

THIS text-book is based upon the lectures delivered by the author to the nurses at the Glasgow Maternity Hospital. It gives a clear and good account of the essential facts of midwifery presented in a form suitable for nurses. The author hopes that the book may prove of some value to students, but we fear that it can be of little value in this connexion, since the details, especially of treatment, are too meagre to serve except as an introduction to the study of midwifery. Special stress is laid upon the great importance of cleanliness to a nurse, and the various conditions under which she should seek medical aid are clearly defined. A valuable chapter is appended upon infant feeding, and we have no doubt the work will serve its purpose as far as nurses are concerned.

The Carlsbad Treatment for Tropical and Digestive Ailments and How to Carry it out Anywhere. By LOUIS TARLETON YOUNG, M.D., B.Ch., B.A. Dub., Major, I.M.S., Medical Travelling Prizeman (University of Dublin), formerly Professor of Materia Medica and Chemistry in the Medical College and Second Physician to the Mayo Hospital, Lahore, &c. Second edition, revised. London: W. Thacker and Co. Calcutta and Simla: Thacker, Spink, and Co. New York: 67, Fifth Avenue. 1899. Price 6*s.*

THIS is the second edition of a very useful book of its kind and the object which its author has in view in its publication is sufficiently set forth in its title. The Carlsbad treatment for tropical ailments is very good and efficacious where proper discrimination and care are taken to ensure the selection of suitable cases. Not by any means, however, are all the diseases and conditions of ill-health incidental to service in India or brought about by residence in that country likely to be benefited by a Carlsbad course; for some of them it is quite unsuitable and even distinctly injurious. The author sets forth what he has to say in a practical and helpful way and he has been careful to point out and discriminate between the kind of cases which are, and those which are not, or only doubtfully so, adapted to this plan of treatment. After a description of the nature of the course at Carlsbad and the method of conducting it as represented by the average daily routine of life in that health resort, there follows a long chapter detailing the way in which the artificial Carlsbad course may be best carried out at places other than Carlsbad itself. This is, in turn, succeeded by chapters devoted to various diseases, climatic and otherwise, and hepatic and digestive affections for the cure or relief of which patients are frequently desirous of having recourse to this method of treatment, together with some wise and judicious hints about diet, mode of life, and so forth. The book seems to us to be a good and judicious guide to the subject of which it treats.

THE LANCET.

LONDON: SATURDAY, JANUARY 20, 1900.

THE ETHICS OF OPERATIONS.

AT no period have the ethics guiding operative interference with disease been of more serious import than at the present, for never has operative surgery had so many calls to fulfil. The brilliant developments of surgery due to the practice of antiseptic methods and aided by the discovery of anæsthetics have led to this result. Surgery is not so much feared as it used to be by the public. On the contrary it is admired and the reluctance to submit to its operations has been largely removed. This is especially the case among the poor in hospitals. They are, indeed, less fearful than more highly educated people, while the inconvenience of many diseases to them is much greater than to those in a better position; hence their readiness to submit to any operations which the general teaching of the hospital into which they are admitted sanctions and which the surgeon under whose care they are placed recommends.

Some diseases are so terrible in their consequences, in the misery or the disablement which they produce, that patients are ready to demand at any risk to be surgically treated when the powerlessness of medicine to relieve them has been demonstrated. It is scarcely in the nature of the medical profession to refuse to listen to such appeals, while, to the credit of their self-reliance be it said, there is no unwillingness on the part of surgeons to do whatever there is a good reason for doing. But the financial value of such work to the operator makes it very necessary that there should be no doubt in any mind that only needful operations are performed—and no requests of the patient will make an operation necessary. It would be affectation to ignore the temptation on the part of the surgeon to magnify his office and to see in every case in which the physician has failed a call for his services. But the temptation is, we are certain, absolutely resisted and all the more absolutely because the surgeon realises which way his pecuniary interests call him. He feels that the delicacy of the matter must be recognised by submitting all such questions to the ordeal of discussion and consultation, and so effective is this control of professional opinion over all good surgeons that there is practically no ground for complaint of inadequate care in the undertaking of operations. We speak, perhaps, a little generally, but the profession is quick in its detection of conduct that does not conform to recognised standards and knows how to resent in any of its members the disregard of reasonable precautions. We repeat that an operation is not necessarily advisable because the patient, who in the very nature of things must be incapable of judging for himself, demands it.

We publish to-day a paper by Dr. CHAMPNEYS, in which he discusses the ethics of operations in connexion with the subject of uterine fibroids. The disease is eminently one in which the ethical questions to which we have alluded may reasonably be raised. It is a frequent disease. Few practitioners are without recollection of cases in which the patient has been harassed by years of distressing experience and symptoms of all sorts—hæmorrhage, sensations of weight or pressure, or disfigurement. It cannot be said that medicine is very effective in the abatement of such grave suffering. On the other hand, this much may be said in its favour as compared with surgery, it does in many cases afford substantial relief, and if it does not cure the disease it does not risk the life of the patient directly. The statistics published by Dr. CHAMPNEYS in his most interesting communication to the North London Medical and Chirurgical Society certainly show great differences in the mortality of operations for fibroids at different institutions. But the general result is an average mortality of 17 per cent., and this is a very serious mortality for a disease which rarely kills, which can be materially controlled by medical care, and which tends to natural abatement. Dr. CHAMPNEYS has made a most useful contribution to the discussion of a serious ethical question, and one which both general practitioners and consultants will appreciate, (apart from his illustration of the subject of fibroids when viewed from a statistical standpoint). The limits within which surgical operations may be attempted have been much enlarged, as we have said, but there are limits. And though no surgeon will be severely judged who by his well-meant and highly cultivated art occasionally brings about the death of his patient before this event would have been accomplished by disease, it is a result which brings no credit to surgery.

DR. ALFRED STENGEL, Professor of Clinical Medicine at the University of Pennsylvania, has published an important paper[1] on the above subject, based on studies and observations made on undergraduates at the University of Pennsylvania. The studies also have a particular interest in relation to a contribution on a similar subject based upon observations on Cambridge undergraduates by Professor CLIFFORD ALLBUTT of Cambridge, which recently appeared in the fifth volume of his "System of Medicine." There are important agreements and a few differences in the conclusions reached by these two observers.

For six years Dr. STENGEL has examined athletes competing for positions or playing in the various teams (cricket, football, long-distance racing) of the University and had made systematic observations on the conditions of the heart and circulation. In outlining the heart a method like that of Dr. SANSOM was followed, the borders being mapped out with the aid of percussion and auscultatory percussion by a brush dipped in oil. The mid-sternal line, the episternal notch, and the outlines of the upper ribs were also marked out. The outlines thus obtained were traced on tracing-paper applied to the chest and transferred thence to drawing-paper. In watching the effects of training attention was first drawn to the ease and frequency with which a soft systolic murmur was found to develop over the heart. In a special trial of nine football players during the summer of 1893 it was noticed that three

[1] American Journal of the Medical Sciences, November, 1899.

promptly developed a very evident cardiac murmur after a little exertion. During the succeeding autumn term the same men were tested under similar conditions but gave no evidence of cardiac murmurs. A number of interesting charts are given, of which the following may be regarded as typical. Chart No. 1 is that of a young man, aged 19 years, and shows an extension of the cardiac limits after a half-mile race. The left border of the heart was displaced to a point somewhat beyond the nipple line and the right border to a distance of about two-thirds of an inch beyond the corresponding edge of the sternum. After the race there was a diffused thrill felt over the apex of the heart and in the epigastrium, and this was confirmed by auscultation. The second pulmonary sound was also distinctly accentuated. Chart No. 2 is that of a man, aged 22 years, a half-mile runner. Before the race the heart sounds were normal. At the conclusion of the race there was a distinct systolic thrill at the apex of the heart.

A trained walker, 23 years of age, in regular "form" for some years, showed an increase of the first sound of the heart together with a puffing systolic murmur after a race. The right border of the heart underwent no displacement in this case, but the left was displaced to the nipple line after exercise. Chart 4 represents that of a young man of remarkable physique—the holder of three world's records—who showed a condition similar to that of the preceding case after a race. Dr. STENGEL thinks a preliminary over-distension of the right side of the heart occurs during athletic exercise and is attended with a certain amount of discomfort or distress. When this subsides, however, the athlete is said to have recovered his "second wind." This conclusion was independently reached by him, and he was gratified to find that such was also the conclusion arrived at by Professor CLIFFORD ALLBUTT.

The evil consequent on over-distension of the right side of the heart and *ipso facto* of the venous system is strikingly illustrated by the case of a young man who was engaged in playing football. He was a man of "superb physical condition" and had not been hurt or disabled in play, but on the occasion of a keenly-contested and very trying game he suddenly collapsed both physically and mentally towards the end of the game. He had been repeatedly examined on former occasions and nothing abnormal had been found. "I saw him immediately after the attack," said Dr. STENGEL, "and found him bleeding at the nose, more or less cyanosed, and with a weak, fluttering pulse. On examination of his chest I discovered that both sides of his heart had become enlarged, the increase towards the left and right being fully three-quarters of an inch to one inch. The man was prostrated and did not recover any sort of control of himself for some hours. He then became rapidly better and after a few days was seemingly quite well." In a fortnight he resumed play and apparently suffered from no bad effects.

Two instances are given of the effects of excessive cycling in the cases of two young men, aged 19 and 24 years, both of whom suffered seriously for their rashness. The latter of the two had been working in an office and was not in good condition when he undertook a four days' ride on a tandem, riding from 50 to 70 miles a day. "He was prostrated at the end of four days. His heart became very irregular and he was confined to bed for four months" before recovery. "At present," says Dr. STENGEL, "he still suffers from a dilated heart, with accentuation of the second sound at the base" and a proneness to develop a systolic thrill and murmur on exertion. This case should serve as a warning to over-zealous amateur cyclists.

Dr. STENGEL points out further that the pulmonary arterial murmurs (heard in the second left intercostal space) are due to a dilatation of the artery prior to its bifurcation and are almost habitually present in young boys after exertion. A distinct pulsation is often also felt in this situation. The cardiac systolic murmurs are as a rule due to mitral regurgitation, but others are possibly of cardio-pulmonary origin. He refers also to the remote after-effects appearing in middle-aged persons who have indulged freely in athletics during youth. He concludes that over-distension of the heart is frequent as a result of athletic contests and may cause harm if the individual is in ill-health or badly trained, and that permanent hypertrophy with symptoms of palpitation and distress are results not seldom met with. He suggests the strict supervision of college athletics and advises that young men should be encouraged to continue to practise some form of mild exercise after the discontinuance of regular athletics.

OF the many inconveniences which beset the life of a medical practitioner there is none for which he is more often justly made an object of pity, and none which is more likely to put him at a really serious disadvantage, than the interruptions which disturb his hours of sleep. The delayed breakfast, the hurried lunch, snatched perhaps between two visits while the drawn blinds of the brougham conceal from a passing patient the fact that his adviser is far from practising that hygienic deliberation which he has just preached, the dinner postponed till far into the night—these are to a man busy in general practice details of daily life to be borne with a grin. But what such a man finds really hard to bear is the interference with his sleep which is almost as inevitable a feature of his life as interference with his meals. His food may be eaten under conditions which men of another occupation would consider were those of intolerable hardship, but still food sufficient for his wants he can always find time to take; and medical men learn from personal experience how much more than is necessary most people eat, and that if mental work needing a ready intelligence follows close upon a meal, that meal must be a light one.

Sleep is with most men in a different category from food in this respect, that whereas if a man is hungry and has food he can eat it at any time and in any place, yet if a man is tired and needs sleep he cannot, with rare exceptions, sleep except at a particular time and under very particular circumstances. Sleep is always associated in our minds with night and few men can sleep well by day. Again, for most men perfect repose of body is necessary as well as an absence of all impressions upon the senses. The conditions, in fact, under which alone most men can woo sleep with success are those which they can find only at night and in their beds. The hours, however, which a busy medical man

can spend under these conditions are fewer than those which he needs for sleep, and even then they are often interrupted. The importance of sleep to men whose work requires observation, thought, and memory is paramount. Exceptional intellects there are and have been which can work at a high pitch and almost continually with the briefest intervals for sleep during every 24 hours. Such cases, however, must always remain exceptional, and their example cannot be imitated by the ordinary man with success, nor, indeed, without disaster. A John Hunter may retire to his dissections, his books, and his writing after a long and busy day spent in the active practice and teaching of surgery and after three or four hours' sleep rise fresh and vigorous for another day as full of work. Here and there a man of genius may spend his day doing as much work as two ordinary mortals and fill half the night with enough to occupy two more, but very few are the minds capable of this incessant labour. And in no profession is the labour more exacting than in that of medicine, in which, added to the mere mental exertion, there is so often a sense of responsibility which weighs even more heavily. For all civilised men—at any rate, for all those who live in busy towns—the question of sleep grows with the press and hurry of modern life more and more important. For no class of men is it more so than for practitioners of medicine. And the pathology which new conditions of life is ever creating tends more and more towards conditions where the absence of sleep may play a prominent causative part. We improve our sanitation and our general hygiene, and we abolish the plagues of our forefathers, but we work our nervous systems more in a day than they did in a week, and we fall victims to insomnia and the whole train of nervous disorders in which worry, overwork, and want of sleep occur as etiological factors. Sleep all men must have who use their brains much, and especially all men whose work is associated with extra worries such as are so often inseparable from medical practice.

The hours usually devoted to repose are for medical men inevitably curtailed and interrupted. These hours must be supplemented, then, by others not usually given to rest. Medical men must learn to use their chances, or rather must learn to regard as chances for sleep moments which they do not now look upon in this light. They must avail themselves of the brief opportunities which their mode of life usually affords in plenty. If a man could sleep through the intervals during which he is in a train, for example, or in his carriage from visit to visit he would make up the deficiencies of his short and broken nights. All that is needed is practice. The conditions which men demand for sleep are not truly essential. Convenience directed us to work in the light and sleep in the dark and custom has confirmed her directions, adding to night perfect quiet and bodily comfort. But men can learn to sleep without these easy introductions. Boilermakers grow used to taking their rest beneath the clang of their comrades' rivet-hammers, and the general practitioner can learn to take his amidst the stream of traffic of a busy town. Sleep is no exception to the faculties that can be acquired by practice; and just as the great general learned to drop asleep on horseback when his waking energies were not required, so, too, the busy medical man must learn to keep his health and vigour by using those brief intervals, which he now regards as inevitably wasted, for snatches of that mental repose which is so often denied him at its expected time.

Annotations.

"Ne quid nimis."

THE INVITATION TO THE INTERNATIONAL CONGRESS ON MEDICAL ETHICS.

THE English circular of invitation to the International Congress of Medical Deontology or Medical Ethics has now been issued and some 2000 copies have been sent, mainly to the secretaries of such medical organisations as deal with economical and ethical questions. The secretaries have been requested to distribute the same among the members of their respective societies. If any society has been omitted the secretary or any other member has only to write at once to THE LANCET office stating how many circulars he desires to receive. But as individual medical men and others who have special reasons for being interested in economical and ethical questions affecting the medical profession and who sympathise with the objects of the congress are also invited to become members of the congress, the honorary secretary of the British Committee will be pleased to send them personally a circular of invitation if they will apply by letter, addressed 423, Strand, London, W.C. The congress, as already announced on several occasions, will meet on Monday, July 23rd, at the Palace of Congresses and of Social Economy now in course of construction on the Exhibition grounds. The subsequent meetings will be held at the Paris École de Médecine. The circular now issued gives the rules of the congress and the list of the subjects for discussion, and anyone desiring to read a paper on any of these questions must submit the manuscript of his paper to the Organising Commission before April 1st. Such papers if written in English should be accompanied with a summary in French and it is absolutely obligatory that all resolutions should be translated into French. Papers and speeches may be either in French, German, English, or Italian; but as among educated classes French is more widely understood than any other language and constitutes at present the best international link we possess, it would be very much to the advantage of English speakers if they brought with them a summary of what they intend to say written in French. This would also greatly facilitate the publication of the report of the proceedings. Further, we would urge that it would be an act of courtesy and would greatly facilitate the organisation of the congress if those who intend becoming members would at once notify the fact and send their subscription to the treasurer, M. P. Masson, 120, Boulevard St. Germain, Paris. As already stated, the subscription or entrance fee is 12*s.* for full members and 8*s.* for participating members—i.e., medical students and the wives or families of the full members. The latter cannot vote or take part in the discussion. The payment of fees can be done at once; for, even if the intending member finds at the last moment that he is unable to be in Paris at the date fixed for the congress, he will in any case have helped to secure the success of this work of organisation. By subscribing he will have given another proof of the support the movement is receiving, and in the course of time he will get the printed reports of the proceedings, which in themselves may be a sufficient compensation for the small outlay he will have made. It has been said that the British Committee of Patronage is not representative of the profession. We would observe that there has been no attempt to make this committee

representative of the profession as a whole. Such an attemp would be altogether opposed to the spirit and object of the congress. For it is not a scientific medical congress. The object, on the contrary, has been to form a committee representing the efforts made to organise the profession and able to speak on behalf of that small minority who have especially devoted themselves to the study of its economical interests. The medical profession as a whole is not organised and does not pursue studies of this description. Therefore, if the British members of the congress were a faithful representation of the entire profession only a minority of the members would understand the object of the congress and be capable of taking practical part in its work. Viewed in this light it seems to us that the British Committee comprises precisely the sort of elements required for its purpose. Nearly all its members are delegated by active and prosperous organisations engaged in solving economical problems. The presence of eminent authorities on medicine or surgery as such is not needed at this congress. No scientific papers will be read. What is wanted is men who have experience in the vexed questions usually discussed under the heading of the "Battle of the Clubs" or "Hospital Abuse," men who have practical knowledge of the difficulties of grouping medical practitioners together and of forming strong unions capable of fighting in defence of their economical interests. Most of the members of the British Committee of Patronage have been actively engaged in such endeavours. They have won laurels in the struggle. Nor is this the case only with regard to the British section, as is shown by the presence of Dr. Vandam and Dr. Cuylits, the president and secretary respectively of the Brussels Medical Union, among the supporters of the movement. All who have read our account of the fight these gentlemen organised against the Belgian Mutualists will readily admit that they may have much to teach other workers on the same lines. Other countries—and notably France itself—will be represented also by leaders and organisers, men who have fought over every inch of ground in the law courts and in Parliaments against those economic forces that tend to degrade and lower the standard of the medical profession. Such men as these should ensure the success of the congress—they have the practical experience which will enable them to indicate what is the right course of action.

WHEN ADULTERATION IS GOOD.

OUR remarks on the alleged adulteration of golden syrup with maize glucose published in our issue of Oct. 14th, 1899 (p. 1034), have prompted a specialist on the subject to forward us a recently printed (January, 1900) pamphlet containing, he avers, the whole truth about the question. Oddly enough he shows by a number of analyses that adulterated syrup is, when regarded as a food, purer than unadulterated. In fact, he says it would be more reasonable to regard golden syrup as the adulterant instead of maize glucose and Mr. H. W. Wiley, a recognised authority on the subject, states that syrups of commerce are glucose adulterated with so-called cane syrups—that is, with the drippings and refuse of sugar refineries. Golden syrup would seem, therefore, to need a new definition. The term was at one time certainly applied to the by-product of loaf sugar manufacture, but loaf sugar exists no longer. Before 1860, on the introduction of centrifugal machinery and the change that it caused in the nature of syrup, golden syrup became a generic term like "syrup" but of narrower application and lost any significance it may have had in regard either to composition or method of manufacture. From that time golden syrup as known to the trade has been prepared in various ways from various substances. This declaration throws an entirely new light on the nature and origin of modern "golden syrup." Still we fancy that the public would rather know that they were buying natural syrup from the cane than a sugar derived from the acid digestion of maize. The preparation of maize glucose is, however, conducted with great care and there is no reason for doubting the wholesomeness of the product. In regard to future action under the Sale of Food and Drugs Act the old difficulty arising from the want of a definition will be encountered. Definitions as to certain foods are, it seems to us, essential in the clauses of the Act before certain cases of adulteration can be satisfactorily established. We have pointed this out again and again as a defect in the provisions of the Food and Drugs Act. In any case the purchaser has a right to get exactly the article in nature, in substance, and in quality that he demands. Substitutes may be even better than the original article, but that does not justify deception. Fraud is nothing if not impertinent and a somewhat astounding example of this occurred last week. A grocer had purchased a cask of brandy which he *thought* was Hennessy's brandy, so he purchased some labels closely resembling that used by this well-known firm and attached them to the bottles. A person who asked for a bottle of Hennessy's three star brandy was supplied with a sample of the defendant's bottling. The magistrate pointed out that the defendant was liable to be sent to prison with hard labour for four months without the option of a fine, but he decided to fine him £10, with £10 10*s.* costs. No steps apparently were taken against the printer who had supplied labels closely resembling those used for a well-known article, the vendors of which, however, have an effective remedy in their hands in the provisions of the laws of the land.

GUARDIANS OF THE POOR AND THE VACCINATION ACT.

THE minimum fee of 5*s.* or 5*s.* 6*d.* for a vaccination where two or more visits have to be paid and an aseptic operation performed is no better pay than a practitioner gets who visits for 1*s.* per visit and 2*s.* 6*d.* for medicine, yet with all this we find boards of guardians who appraise the services of their public vaccinator at a less fee and pass resolutions to ask the Local Government Board to reduce it. The real fact is that the anti-vaccinationist never dreamt that the public were intelligent enough to accept vaccination provided that it was offered to them on terms that they could accept. It is gratifying, therefore, to find that the new Act of 1898 has been more generally useful than was at first expected. But we have a report before us of the last meeting of the Wigan Board of Guardians which unanimously passed the following resolution: "That in the opinion of this board the maximum charge fixed by the Local Government Board by the Vaccination Order, 1898, for vaccination is too high and requires revision, and that a copy of the resolution be sent to all unions in England and Wales and also to the Poor-law Association with a request that the Executive Council take steps to remedy this defect." That such a resolution should be passed by a public body that has never yet paid or proposed to pay the "maximum" fees to its vaccination officers, so far as we know, is beyond comprehension. The statement was made by the mover of the resolution that "the charges, as fixed by the Local Government Board, undoubtedly constituted *an outrage* on the liberality of the community." The italics are ours. He further said that in 1898 the charge in Wigan was £30; in 1899 it had risen to £192, an increase of £162, but he failed to state that in 1898 vaccination was in abeyance, owing to the guardians neglecting to order their vaccination officer to prosecute the delinquents, and that of those vaccinated in 1899 a great many were children who should have

been vaccinated in 1897 and 1898. Furthermore he failed to state that the emolument from this "extra" which goes to the district medical officer, as he happens to be the public vaccinator, was very much below the average. One guardian remarked that "vaccination ought to be at a much less price than they are now paying for it." Probably when a new appointment is made this board will ask medical men to tender at a contract price, and will then be willing to publish the prices of the successful contractor. A borough with a population of over 62,000 is not paying a large sum in disbursing £212 in return for two years' vaccinations.

THE COMMON FORMS OF MENINGITIS.

DR. CHARLES L. DANA of New York publishes an interesting and opportune paper on this subject in the *Journal of Nervous and Mental Disease* for December, 1899. Few subjects are more perplexing to a student than the different types of meningitis. The classification, never very simple, has undergone constant changes during the last decade. In one of the earliest and most conscientiously made classifications of meningitis, that by Huguenin (published in Ziemssen's "Cyclopædia" nearly 25 years ago), 14 different forms of cerebral meningitis were described. In Grasset's masterly work published about the same time the forms described were acute, chronic, and tuberculous meningitis. The progress made in the past two decades has been shown on the one hand by a gradual simplification of the classification, and on the other by clinical and pathological studies which have added richly to the store of knowledge and obliged us to add two or three new names to the list. Thus, in the recent treatises of Gowers, Oppenheim, and Mills from 10 to 12 types of meningitis are recognised. The various types of the new and the old added together make a total of about "20 different forms, without using the term 'meningismus,' or including acute cerebral œdema or acute and chronic hydrocephalus." The forms of meningitis as seen in ordinary practice are shown by an analysis of 137 cases collected by Dr. Dana from the records of Bellevue Hospital, New York, during the past 15 years. In 46 cases the records of necropsies were also available. The forms of meningitis in the 137 cases referred to include the following:—Purulent or fibrino-purulent lepto-meningitis 52 cases, cerebro-spinal meningitis 15 cases, serous meningitis of traumatic, alcoholic, or infectious origin 15 cases, tuberculous meningitis 14 cases, internal pachymeningitis (hæmorrhagic and syphilitic) 12 cases, chronic lepto-meningitis three cases, external pachymeningitis from mastoid disease two cases, and unclassified forms 19 cases. Apart from these there were five cases of spinal meningitis. Leaving out the spinal cases there were, therefore, only five kinds of meningitis recognised in ordinary hospital practice. It will be seen that the purulent, tuberculous, cerebro-spinal (epidemic and sporadic), and serous are the principal forms, while pachymeningitis is practically only a chronic syphilitic manifestation. "Acute syphilitic meningitis," says Dana, "is certainly most rare, if it ever exists, at least, using the word *acute* in the same way we apply it to other forms." And again, posterior basic meningitis—a phase which only denotes its topographical distribution—is probably a syphilitic or tuberculous disease or a serous meningitis. These hospital figures in Dana's experience seem to coincide in the main with those of ordinary and general practice. Acute spinal meningitis is a very rare disease. Dana confesses that he has never seen a primary case and can find no record of one. It is well to abandon the distinction between cerebral and spinal meningitis in ordinary clinical work, for if pus is found on the cerebral membranes it is almost invariably present in the spinal canal also. Similarly tubercles are often found in the spinal canal if there is a cerebral tuberculous meningitis. Pachymeningitis is a disorder which has received an extraordinarily rich vocabulary of qualifying terms, and the distinction into external and internal types is an academic one. Extra-dural abscess would be the correct term for acute suppurations involving the outer surface of the dura. Intra-nasal, aural, and mastoid inflammations are really the morbid conditions in such cases and they call for surgical treatment. A non-surgical pachymeningitis is mostly an internal pachymeningitis. This form of disease is commonly syphilitic and not infrequently hæmorrhagic. The hæmorrhagic form is associated with disease of the blood and blood-vessels and is found practically only in scorbutic children, in some forms of insanity, and in chronic alcoholism. Leptomeningitis both clinically and pathologically occurs in one of three forms, the epidemic cerebro-spinal, the fibrino-purulent, and the tuberculous. The first is well known, and in doubtful cases the employment of lumbar puncture enables us to settle the diagnosis if we find the diplococcus intracellularis or the micrococcus lanceolatus. Most epidemics seem to be associated with the former and a few with the latter organism, but there is no way of distinguishing between the two forms except by culture. Purulent or fibrino-purulent meningitis is usually a pyogenic infection due to the streptococcus pyogenes or to the pneumococcus of Fraenkel, but may sometimes be due to almost any other pyogenic organism. Clinically it is not possible to distinguish these from one another and all have a high mortality. While tuberculous meningitis is one of the best known and most readily recognisable, the same cannot be said of serous meningitis. Our knowledge of this affection is far from complete. To this class of brain affections should be added the so-called cases of meningismus described by Quincke (1891) and later by Boenninghaus (1897), of which about 40 have been recorded. Some of these have been traceable to the effects of alcoholism with its resultant cerebral irritation, congestion, and œdema, or been assigned to conditions rising from narcotic poisons, cerebral trauma (traumatic serous meningitis), or cerebral exhaustion and starvation. Acute cerebral œdema, usually following severe blows on the head, is associated with symptoms like those of true meningitis, lasting two or three days and then generally disappearing with rapidity. The acute serous meningitis of alcoholism and allied toxic conditions called "wet brain" closely simulates meningitis and lasts about 10 days. A mild delirium, with a temperature of 101° or 102° F. and some muscular twitchings may be observed. The skin is hyperæsthetic and the irritability of its vascular mechanism is shown by the *tache cérébrale* which can be readily evoked. There is some rigidity of the neck with contraction of the pupils, while the tongue is coated and the bowels are constipated. Eventually the patient dies or turns towards convalescence at the close of the second week. The serous meningitis of Quincke and Boenninghaus is an acute hydrocephalus occurring most often in children or in young adults. Sometimes it runs a short course ending in recovery, and sometimes it is rapidly fatal. A few cases are marked by partial remissions and subsequently by gradually developing hydrocephalus. It affects the sexes in equal proportion and pyrexia is present in about one-third of the number of cases. The cause is some form of infective fever in about half the cases. Traumatism, otitis media, and sepsis are occasional factors and bacteriological tests so far have been negative.

FLOATING HOSPITALS FOR WEST AFRICA.

IN a lecture given at the Livingstone Exhibition, held at St. Martin's Town Hall on Jan. 5th, Miss Mary Kingsley, in urging the claims of the Colonial Nursing Association, said that what was wanted on the West Coast of Africa was

a hospital cruiser with a staff of nurses and medical men together with the establishment of branch hospitals in the shore settlements. The amount of good that medical science and nursing could do in a country like that of the West Coast of Africa was great, and some such scheme should be devised both for sympathetic and Imperial reasons. There were certain disadvantages attaching to hospital ships, but even a hospital hulk in Miss Kingsley's view was superior to coast sanatoria. There is much to be said for Miss Kingsley's plea and we trust that the Colonial Nursing Association will not allow the matter to drop.

"CHRONIC RECURRING MEMBRANOUS PHARYNGITIS."

IN the *Journal of the American Medical Association* of Dec. 2nd, 1899, Dr. J. O. McReynolds has described a case of this very rare disease. Sir Morell Mackenzie seems to have previously described it under the name of chronic diphtheria, but in consequence of its pathological and clinical differences from diphtheria, the above designation, as Dr. McReynolds suggests, is the best until a more accurate knowledge of the subject is attained. A girl, aged 19 years, in fair health, was under his observation for 14 months. When uninfluenced by treatment the membrane recurred twice or three times a week, persisting on each occasion for one or two days, and then becoming spontaneously exfoliated, leaving the throat apparently healthy. If forcibly and prematurely removed a raw surface covered by glairy material was left, which easily bled on manipulation. The area affected varied, the soft palate was always covered, and the entire pharynx was sometimes involved. Repeated examinations never revealed the diphtheria bacillus, although several years previously the patient had an attack of genuine diphtheria. Streptococci and staphylococci were found in large numbers, but there was no evidence as to their causal relation. The patient was able to follow her vocation with only slight interruptions and the constitutional symptoms were mild. The daily ingestion of raw onions or the local application of nitrate of silver prevented the formation of the membrane for a period of two weeks. After trying a multitude of remedies the writer was convinced that nothing would produce a permanent cure but that the disease would in time spontaneously subside.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC.

THIS institution enters this month upon its second year, and we understand that the number of subscribers and members has steadily increased, that the practical classes have been filled, and that the consultations have been well attended. During the coming three months special clinical lectures are to be given on alternate Wednesdays, at 5 P.M., by the President, Sir William H. Broadbent, Bart., Dr. G. H. Savage, Professor McCall Anderson, Dr. Patrick Manson, Dr. Saundby, and Mr. Jonathan Hutchinson. A museum is in course of erection, the builders having undertaken to finish it by March, and it is hoped that when completed this will be an additional source of attraction and interest to the subscribers and members. A new departure has been made as regards the college journal the *Polyclinic*. The first number of the second volume has just been issued. The journal for the future is to be published monthly instead of quarterly, and will furnish a complete record of the clinical work of the college. It is to be edited by Mr. Jonathan Hutchinson. The laboratories, class-rooms, the Roentgen-ray and dark rooms, have been equipped in the most thorough manner, and the medical superintendent is at all times glad to welcome visitors to the college and to afford them an opportunity of becoming personally acquainted with the advantages and facilities which it offers for post-graduate work. One of the departments of work in which the new Medical Graduates' College and Polyclinic proposes to engage is the investigation of special subjects by the agency of permanent sub-committees. We are informed that the Committee on Tuberculosis, of which Dr. Heron has been appointed chairman, will meet for a second time on Wednesday next, Jan. 24th, and will proceed according to arrangement to discuss various questions in connexion with the external manifestations of tuberculosis, more especially those coming under the name of lupus. This meeting will be open to all members of the college. Various questions and statements have been drawn up with a view to elicit facts and opinions as to the clinical history of these maladies and their relation to other forms of tuberculosis. Copies of these questions may be obtained on application to the medical superintendent at 22, Cheniesstreet. The hour of meeting is a quarter past five. The Committee on Climate and Geographical Pathology has elected Sir William Kynsey as its chairman and Dr. A. P. Hillier as secretary, and holds its first open meeting at 5.15 P.M. on Wednesday, Feb. 7th. The region to which it first gives attention is South Africa. It is desired to collect information respecting the diseases and the climate of different regions and districts. Those possessing information on this subject are requested to communicate with Dr. A. P. Hillier and the gift of books and pamphlets will be thankfully received. The committee is a standing one and will no doubt resume the same subject on future occasions as material may accumulate.

PRECAUTIONS AGAINST THE IMPORTATION OF PLAGUE.

THE Local Government Board for Scotland, in a circular letter dated Jan. 15th, 1900, again calls the attention of local sanitary authorities to the presence of plague in Portugal and the necessity for carrying out "with especial care" the measures in force in these islands for preventing the importation of infection. Their notice is specially directed to a General Order issued by the Commissioners of Customs on Oct. 31st of last year. The object of that Order was "to make certain that in carrying out the regulations of the board the medical officer of health shall receive the greatest possible assistance from officers of Customs," and it is pointed out that, on one occasion at least, such assistance was actually declined by an inspector of Customs. The mechanism adopted for joint action by the medical officer of health and Customs officials for dealing with arrivals from infected ports is briefly as follows. The officers of Customs look to the medical officer of health to inform them from time to time of any particular ports or countries the vessels arriving from which he would desire to visit. In this connexion it is pointed out in the letter of the Board that "the earliest information which would usually be available to this end is that which would be obtained by a regular examination of the news telegraphed from abroad for the purposes of the daily press." On the other hand, the officers of Customs will, in their turn, give the medical officer of health any information which they may possess respecting the arrival or impending arrival of any ships from the ports or countries in question. The term "medical officer of health," it may be noted, includes any duly qualified medical practitioner appointed or employed by a local authority to act in the execution of the orders relating to plague. Attention is also drawn to the possibility of the infection of plague being carried by some of the lower animals, and especially by "rats, mice, and, by natural sequence, cats," and the necessity for inquiring into the evidences of disease in these animals and taking measures for destroying them if occasion should arise. That rats can and do suffer from plague and are an important means of diffusing infection appears no longer

to admit of doubt. The susceptibility of mice appears to be very much less marked, and these animals would seem to be far less active agents in the spread of plague than rats. There is, however, evidence that they can aid in spreading the disease and it is believed that they did so to some extent in Formosa, in Jeddah, in Alexandria, and perhaps elsewhere. Cats, the third group of animals mentioned, appear to be even less susceptible than mice. Scattered examples of what have been believed to be attacks of plague in cats have been published from Poona, Worlee, Jawalapur, and elsewhere in India, and from Hong-Kong, Jeddah, Mongolia, Hoihow, Mauritius, and Oporto; but it is perhaps open to question whether in any instance there has been scientific proof that the animals have in truth suffered from the plague.

YELLOW FEVER IN CUBA.

DR. D. L. LAINÉ discusses in the November number of the *Revista de Medicina y Cirugia* (Havana) whether it is possible to stamp out yellow fever. On the whole he is hopeful, but he points out that though the great diminution in the number of cases which has been observed since the American sanitary authorities have isolated the cases in hospitals seems to point to the probability of thorough hygienic measures carried on for some years being crowned with success, the pathogenesis of yellow fever is still so enveloped in mystery and previous periods of diminished virulence have led to such illusory hopes that it will be wise not to count too much on the total suppression of the disease.

ST. GEORGE'S HOSPITAL AND THE PRINCE OF WALES'S HOSPITAL FUND.

Mr. Timothy Holmes and Mr. C. L. Todd, the treasurer and secretary respectively of St. George's Hospital, write in the *Times* of Jan. 9th concerning a matter which they naturally have near at heart—namely, the financial position of the hospital. They refer to the fact that the pecuniary position of the hospital is considered by the authorities of the Prince of Wales's Hospital Fund to be such that the institution is not to be assisted from that Fund. Mr. Holmes and his colleagues point out that this is not the case. There is an increase, it is true, in the dividends accruing from funded property. These dividends from 1873 to 1883 averaged about £4000. In 1898 they had risen to £13,662. But there has been a great falling off in the income from subscriptions and donations. "The average of subscriptions and donations from 1873 to 1883 was over £10,600 and in the next decade over £9200. It is now below £8000. ..... And there can be no doubt that the cause of the limited subscription is the general belief that the hospital has immense realised property and is in no want—a belief which, the Governors fear, the report of the Prince of Wales's Hospital Fund will tend to confirm." The writers of the letter conclude:—

"It must be far from the mind of the managers of the Fund to injure a hospital of which the reigning Sovereign is always president and of which His Royal Highness the Prince of Wales is a gracious and liberal supporter. Yet there can be no question that individual hospitals lose subscriptions in consequence of their friends preferring to give to the Fund and some of our former subscribers have given this as their reason for ceasing to contribute. To the other hospitals this is more than recouped by the sums allotted from the Fund. But to St. George's which receives nothing the loss is uncompensated. The Governors therefore feel it their duty to do all in their power to urge on the public the need for increased support, and trust that they may have your powerful aid in that effort."

There were not wanting those who on the inception of the Prince of Wales's Hospital Fund feared that it would have a depressing effect upon the Hospital Sunday Fund. These fears have not been realised, but it would seem that, secondarily at any rate, the existence of the Fund has lessened the amount of subscriptions to certain hospitals while doing a splendid work for them. It is never safe to assume that any institution can do without the offerings of the charitable because of the existence of a fund the benefits of which may be available. We therefore support the plea of St. George's Hospital for increased subscriptions and at the same time hope that the disbursers of the Prince of Wales's Hospital Fund will appreciate the sound logic of Mr. Holmes and Mr. Todd and at the next distribution will place St. George's Hospital on the same footing as similar institutions.

PRONUNCIATION OF THE WORD "ANGINA."

THE November number of the *St. George's Hospital Gazette* contains a short article by Dr. John W. Ogle to the effect that the second syllable of angina is short (angĭna) and not long as commonly pronounced. Dr. Ogle derived his information in 1879 from the Archbishop of Canterbury (then Bishop of Truro), to whose notice the question had in that year been brought by Professor H. A. J. Munro. The pronunciation of Latin vowels, whether long or short, is usually determined by their position in a line of poetry. Angina occurs twice in hexameter lines, but the early editors of the printed editions having made up their minds that the second syllable was long, altered the reading of the MSS. to suit their preconceived views. In Serenus Samonicus, "De Medicina Præcepta," v. 282, the original reading of the MS. was—

"Angina tum vero mixtum sale poscit acetum."

One printed edition, however, altered this into—

"Verum angina sibi mixtum sale poscit acetum,"

and another variant was—

"Ast angina," &c.

A line of Lucilius (quoted by Nonius) reads in the MSS.—

"..... quos una angina sustulit hora,"

but has been altered by the editors into—

"..... angina una quos sustulit hora."

HEROIN IN RESPIRATORY AFFECTIONS.

DR. HENRY D. FULTON,[1] from an experience with this drug extending over five years, is able to give an account of its therapeutic value. The diseases treated were simple bronchitis, bronchitis with measles, the bronchitis of influenza, chronic catarrhal bronchitis, phthisis, and pneumonia. In December, 1898, when the epidemic of *la grippe* was at its worst in Pittsburg, Pa., the effects of heroin as a cough-relieving agent were prompt and definite, the degree of comfort afforded to the patient being in marked contrast to that derived from the usual remedies. "In those cases in which the patient is harassed by almost incessant cough, or by severe paroxysms occurring in the night, so greatly interfering with rest ..... and leading to an exhausted condition the following day, its good effects were especially noticeable." In *la grippe* the range of its influence is limited apparently to allaying the cough, as it does not otherwise influence the course or duration of the disease. In phthisis its use is followed by most satisfactory results in securing freedom from cough and therefore promoting rest at night. In one case of phthisis with laryngeal disease and a peculiarly distressing cough the effects were most gratifying. In three other cases of phthisis it proved useful. The administration of the drug was begun early in the afternoon (in the case of laryngeal phthisis) and continued every three hours till nine o'clock in the evening, the dose being $\frac{1}{16}$th of a grain. In

[1] New York Medical Journal, Dec. 30th, 1899.

a large series of cases of acute and chronic bronchitis it also proved valuable. "In the acute bronchitis of children," says the author, "its employment is followed by prompt amelioration of cough and it apparently moderates the severity of the attack. In chronic bronchial catarrh it seems to have a positive curative value." In measles, when the bronchial irritation is a prominent symptom, nothing else was found so serviceable as heroin in suitable doses (from $\frac{1}{12}$nd to $\frac{1}{8}$th of a grain per dose) to tranquillise the persistent cough. A solution of heroin for hypodermic injection, prepared by the addition of a small amount of acetic acid, was found equally as efficacious as morphia and less objectionable in certain cases of spasmodic asthma. Maximum doses of heroin produce gastric disturbance similar to that following the administration of morphine, but in a lesser degree, and its desired effects can usually, in Dr. Fulton's opinion, be obtained by smaller doses without causing any derangement of the digestive functions.

INFLUENZA IN DOVER: IMPORTANT ACTION OF THE TOWN COUNCIL.

AT a recent meeting of the Managing Committee of the Town Council of Dover the medical officer of health, Dr. Robinson, in an interesting report alluded to the prevalence of influenza among the inhabitants. He characterised the disease at the present time as a veritable plague demanding some attempt to check its ravages. He very properly pointed out, as we tried to do last week, that the chief factor in the distribution of the disease is the infectious person of those who suffer from it. On two previous occasions the Town Council of Dover have issued notices warning the public of the infectious nature of the disease. The later of the two was a quotation from the pronouncements of the Local Government Board and included the following advice with regard to precautions that should be taken:—(1) The sick should be separated from the healthy; (2) the sputa should be received into a vessel containing disinfectants; (3) unnecessary assemblages of persons should be avoided; and (4) buildings and rooms in which people congregate should be well ventilated. Dr. Robinson advised the closure of the public schools for three weeks and his advice was adopted.

PRESERVATIVES IN FOOD: A QUESTION OF PROCEDURE.

Now that the subject of preservatives in food is being very definitely investigated by a Government Committee with a view to formulating a precise scheme of legislation it is surely vexatious on the part of vestry authorities to persevere in instituting proceedings based on the assumption that boric acid and other antiseptics are injurious to health. How is it possible for a magistrate to express a positive opinion that a certain preservative is injurious to health when admittedly the question is trying the utmost abilities of all leading experts to arrive at a pronouncement on this most important point? We must not be represented as saying that the addition of preservatives to food in an indiscriminate way should be tolerated, but it is our opinion that until knowledge is more exact upon the point of injury to health it is not reasonable to push a case for prosecution on this ground. The question of injury to health is *sub judice*, and until this is decided by the Committee on Food Preservatives now sitting it is premature to raise the issue in court. Yet several cases of the kind have been brought before the London courts under the Sale of Food and Drugs Act lately. The procedure can do no good and is likely to defeat the well-meant intentions of the prosecuting parties. It is desirable, we think, that the vestries should wait until they receive from the Government Committee a pronouncement as to what is and what is not permissible in regard to the use of preservatives in food. The Food and Drugs Act only warrants these authorities taking action on the ground that boric acid and other preservatives are injurious to health, and while there remains a doubt as to the fact legal action is unfortunate. We may once more state that the public analyst is not qualified to speak on the question of injury to health, and the fact of his assuming that rôle on occasions only gives strength to the argument that such appointments should be held by medical men exclusively. We trust that some patience will be maintained by those who seem particularly vigilant on this question until the law enables us to view the practice of adding preservatives in a clearer light all round, and especially from the points of view of injury to health. No real good can be done by instituting proceedings on the lines which we have indicated. On the contrary, time and money are wasted and not a little ridicule is bred.

THE ANNUAL (1898) REPORT OF THE MEDICAL OFFICER OF HEALTH OF LONDON: THE LONDON MEAT-SUPPLY.

THE report of the medical officer of health of the Administrative County of London for 1898 has just been issued by the London County Council. It deals with many subjects of the first medical interest, to the consideration of which we shall return in a future issue. Meanwhile we briefly indicate some of the more important matters contained in the report. Thus we find considered the question of diphtheria in elementary London schools, the influence of antitoxic serum on case-mortality in the county, and the occurrence of plague, glanders, and anthrax, of which last disease there were five cases admitted into Guy's Hospital, which all recovered after operation. In Part II. are considered, besides other subjects, those of overcrowding and the seasonal variation in age incidence and fatality of infectious disease. In Part III. we find discussed the regulation of houses let in lodgings, and various subjects connected with food supplies, such as unsound food, upon which hangs not loosely the question of the provision of public slaughter-houses. Only a small amount of meat was seized as unsound in London, but this "is no doubt due to the fact that much of the meat which is consumed in London is not inspected at the time of slaughter." The conditions existing in London give ample opportunities for the admission into the metropolis, and for its sale, of meat which cannot be sold in other parts of the country. With respect to meat killed in London it is obvious that there can be no efficient inspection of meat at the time of slaughter while the killing is conducted in numerous private slaughter-houses. The report then goes on to refer to the report presented by the Public Health Committee of the Council. This report is printed as Appendix II. It details the objections raised by those interested in private slaughter-houses so far back as 1873 when the subject was under the consideration of a Select Committee of the House of Commons. Most of the objections have practically ceased to exist owing to changes in circumstances during the last 25 years. After dealing with these objections the report goes on to point out that the crying need for public slaughter-houses rests upon the necessity for a strict system of meat inspection. At the present time meat sold in Smithfield is inspected, while meat from the foreign cattle market at Deptford and from private slaughter-houses in the Islington Market is not systematically inspected. Exclusive of the private slaughter-houses in Deptford and Islington cattle markets, and of the six or eight such places in the city, the number of private slaughter-houses in London in 1897 was 467. The report suggests that six public slaughter-houses be provided—three on the north and three on the south side of the Thames.

These should be in railway communication with the principal cattle markets outside of London as well as with the metropolitan markets. A useful map is provided showing approximately the proposed sites for these establishments. Carcasses are to be examined in each slaughter-house by a competent veterinary surgeon, and each carcass is to be marked in some way that would be evidence of the inspection. We have upon previous occasions expressed our desire to see public slaughter-houses provided and their use after the lapse of a certain period of grace made compulsory. Their provision would enable animals to be killed in a roomy and airy place where proper care would be taken in cooling the meat which could be thoroughly inspected; and in addition cruelty would be reduced to a minimum. The public health work of the London County Council has been up to now progressive along such sensible lines that we may feel assured that they will continue to press for the abolition of the private slaughter-house.

THE man Hopwood, an insurance agent, to whose methods we called attention in our columns on more than one occasion some weeks ago, was committed to the sessions by the Birmingham stipendiary last week for attempting to obtain £100 from a medical man of Birmingham by false pretences.

SIR CHARLES BRUCE, the Governor of Mauritius, has telegraphed to the Colonial Office that for the week ending Jan. 11th there were seven fresh cases of bubonic plague, three of which were fatal; total deaths from plague, five.

THE WAR IN SOUTH AFRICA.

AT the moment of writing there is no official news from Sir Redvers Buller, but there are rumours in abundance about him and his forces. Still there is no reason to doubt that the relief expedition is on its way to Ladysmith and it is possible that we may soon hear some reliable news of the initial stages of the combined movement; but it may not be yet, for there is a good deal of marching to be done, and the transport of material, of stores, of reserve ammunition, and ambulance equipment through a difficult and practically uninhabited country is a formidable undertaking. We must meanwhile be content to possess our souls in patience. If Sir Redvers Buller succeeds the whole aspect of affairs will be changed. The responsibility of those charged with the movement is enormous, and they are unquestionably right in concealing their intentions in order to avoid any risk of jeopardising the integrity and fulfilment of their strategical schemes. National interests, after all, come before those of a national press, as we are glad to see all the better and more respectable class of journals in this country fully recognise and appreciate.

As medical journalists we have, of course, nothing whatever to do with politics, and we need scarcely add that we neither hold a brief for any political party nor are we concerned for the vindication of this or any other Government, except in so far as the war concerns everybody interested in the well-being of the country. Still, in fairness and justice to the Leader of the House of Commons, we feel constrained to say that we do not see why he should have been singled out for all the adverse criticism he has encountered, for his speeches were perfectly frank and straightforward. If he were ignorant and failed to foresee the course which events have since taken in South Africa he was notoriously not alone in this respect. We know, at any rate, that the Leader of the Opposition repeatedly stated that he saw no cause for war; that a little while ago most people were averse to taking any steps that might bring war about until all peaceful efforts had been made to avoid it; and that no one had, as a matter of fact, anticipated that it would be thrust upon us by the Boer ultimatum of October last, or that the Boers would invade Natal territory at two days' notice. Moreover, there is no denying that the relief of Ladysmith and Kimberley has been, and still remains, the strategical obstacle to our progress and the cause of the present deadlock, notwithstanding that the fighting at Ladysmith has in another way delayed the Boers in carrying out their design of massing a large force between Ladysmith and the seaboard to the south until it was too late for them to accomplish their purpose. What the country wants to know is—How it was that we have blundered so egregiously as to the strength and preparedness of the enemy? Why, if Ladysmith—however badly situated naturally—was regarded as the Aldershot of the Cape, it was not long ago put into a proper state of defence? And why more artillery and cavalry were not sent out earlier in the campaign instead of its being almost entirely left to British infantry to cope with the Boer forces, all of whom are mounted?

We do not know whether our readers happen to have perused the report of a lecture recently delivered at St. George's Hall, Langham-place, by Captain Holcroft, late of the Transvaal States Artillery, on "The Secret Arming and Secret Service of the Transvaal Republic"; if not it is well worth doing so, for it contains an amount of precise information not to be found elsewhere in the same compass. Captain Holcroft states that the present war follows upon preparations made on a vast scale and extended to such details even as the adoption of the English bugle calls, the reason for which President Kruger said would be found out one day. Now these things, if they were done, were not done in a corner. How is it, then, that they seem to have been officially unknown or ignored? What have successive Governments in this country been about in allowing this enormous growth of military power on the part of the Transvaal Government in the midst of an important part of this empire? The Boer forces in the field at the present time, according to an estimated calculation of the *Cape Times*, amount to 87,000 men, from which, however, their losses during the campaign have to be deducted, and as we have no means of estimating their resources in the way of reinforcements, it is clear that there is yet a good deal to be done on the part of this country. Although the progress of the war has so far been unsatisfactory and disappointing we nevertheless fail to see that the results have been so completely disastrous as some domestic and many foreign critics would have us believe, or that, after all, the Boer forces have as yet achieved any such material successes as will necessarily affect the final issue. That the war was a formidable undertaking which would at once require a much larger British force than many people imagined and that the Boers would probably be successful at the beginning is what we have prognosticated from the first. But we shall soon have nearly 200,000 men in South Africa, and with command of the sea and an open seaboard and a comparatively unlimited supply of men and war material the end should, humanly speaking, be practically certain.

With all the adverse criticism which has, rightly or wrongly, been applied to those responsible for the conduct of the war it is most gratifying to be able to point to the way in which the Army Medical Service has played its part under so many difficult and trying circumstances. Sir William Mac Cormac has inspected the army hospitals at the Cape and in Natal and he speaks in the highest terms of the medical arrangements as leaving nothing to be desired and expresses surprise at the wonderful recoveries and the very small death-rate. In all the details of the necessary movements of sick and wounded no army has ever before been so well provided as is ours now in the field; and this remark might indeed be also extended to the provision made for the army as a whole. In a soldier's letter to a contemporary, wherein the scale and excellence of the supplies were favourably commented upon, it was stated that the exceptional experience of this war had shown the desirability of having a limited supply of wire-cutting pliers issued to the troops to cut through the barbed wire surrounding the Boer entrenchments so as to avoid delay from these obstructions whilst under fire. The writer was employed in the Army Telegraph Department and we only allude to the circumstance because it may be taken as evidence of how little had escaped attention.

We think the Director-General exercised a wise discretion in recommending that a staff of eminent civil surgeons should be sent out to the war, for, apart from any consideration of their exceptional skill, there is no gainsaying the force of their professional judgment as to the state of the

war hospitals, the adequacy of the field medical arrangements, and the skill and care exercised by the medical officers. The public will be quite content to accept their view on such matters. It is to be regretted that there is not a larger number of regularly trained army medical officers available for field service, for nothing, perhaps, makes up for the absence of military training, but there is a large civil element to supplement their services at the general and field hospitals where they are doing excellent work. The Director-General has still a long list of civil surgeons at his disposal, for capital professional men are very keen to be employed. We learn from all sides that the surgical results of the war are exceptionally good. Partly owing to the more favourable nature of the wounds caused by the Mauser rifle bullet, partly to the invariable employment of antiseptic dressings, and the extreme care used to maintain surgical cleanliness, as well as in a large measure to the pure and aseptic atmosphere of the South African climate, the progress of the wounded is all that could be desired. The results of some of the wounds as given in Sir William Mac Cormac's further admirable notes, which we publish to-day, are simply amazing.

There is no sign of decreasing enthusiasm in this country or the colonies to render all possible aid, and any number of troops, field hospitals, and medical men are forthcoming. The fact that this is so is a source of extreme satisfaction to all and, it is needless to say, of the highest and most gratifying import to the British Empire. It is hoped that the Yeomanry hospital will be ready for dispatch by the end of the month. Application has been made for upwards of 100 men of the St. John Ambulance Association. The war literature, even so far as it only relates to the contributions and gifts connected with the medical branch of the South African Campaign, has become so voluminous that it is impossible to make such a *précis* of it as shall afford any adequate notion of its extent or of all that is being done for the sick and wounded.

The latest sick returns from Ladysmith give 75 cases, mostly of dysentery and enteric fever, among the garrison. This is nearly 1 per cent. of the force. Considering the circumstances and remembering that the siege has now lasted 10 weeks the list cannot be said to be a long one.

In connexion with the war we have received a little book entitled, "Self-aid in War, with Practical Hints for the Cavalry Wounded in South Africa," by T. F. S. Caverhill, M.B., F.R.C.P. Edin., Surgeon-Major, the Lothian and Berwickshire Yeomanry Cavalry (Williams and Norgate, 14, Henrietta-street, Covent-garden, London). This is a little pocket-sized guide in two parts which gives just the hints it professes to give. It is well illustrated, the advice given is clear, practical, and judicious, and the information is simple and elementary. The main points to be attended to are printed in more conspicuous type in order to prevent them from being overlooked. It is well worthy of being read by officers and men of the Yeomanry and mounted infantry going out to South Africa and will prove useful as a very portable companion and guide for them in the field. The first portion is specially designed for private soldiers and is a translation based on Dr. Diemer's Selbsthülfe. The latter portion for regimental bearers is compiled by Surgeon-Major Caverhill from many sources. The price of the manual is 1s.

THE FLYING HOSPITAL.

In THE LANCET of Jan. 13th (p. 129) we mentioned the flying hospital which had been designed by Dr. Horace Manders. Dr. Manders has sent us the following account of the inception and details of the scheme. It will be noted that the modern flying hospital is altogether different from "Napper's Flying Hospital,"[1] which was a hospital train.

"For 16 years (1860 to 1876) the Royal Wilts Yeomanry possessed eight cars carrying riflemen, two to each squadron, with which they manœuvred. It was found that they could very well keep up with the mounted men and that ditches and small hedges offered no impediment. In the autumn manœuvres of 1872 these cars were frequently used as escort to the horse artillery attached to the cavalry division of the Northern Army, and wherever the guns went so did the cars. An account of these will be found in the *United Service Magazine* (August, 1890). These cars were originally intended as ambulances for the Crimea, taking the wounded from the front to Balaclava Harbour, but were never sent out as the war came to an end. When serving as a trooper in the regiment and watching the action of the cars during the manœuvres it occurred to me then of what extreme value such cars would be to cavalry if fitted up with splints, dressings, instruments, &c. Now that the nation are sending out a vast number of Imperial Yeomanry the idea that occurred to me years ago has been resuscitated and has taken active shape as the flying hospital, which consists of two cars, one hospital, the other ambulance, the design of which has been placed in the hands of Messrs. W. C. Windover and Co., 22, Long Acre, carriage-builders, for execution.

"The hospital car is built after the fashion of an Irish car, but instead of a hollow centre contains a body 6 ft. long by 5 ft. wide, and 1 ft. 9 in. in depth. The footboard on either side falls over the wheel and is made so as to fold over the top of the body. This top opens longitudinally by flaps, flanged so as to keep out rain. Through this opening the well of the interior can be reached, as can also be done by letting down the back of the body. The car can contain four men on either side, with a non-commissioned officer on a moveable seat in rear. The well is packed with a regulation operation case, sets of splints, dressings, and utensils, while a cylinder of drinkable water is carried outside along the front. At the sides, on the outside of the body, are carried a lever, two picks, and a shovel, with a bucket slung beneath. The car is drawn by two horses attached to a pole, on that modification of the curricle principle adopted in the 'Cape cart,' which allows the greatest lightness, speed, mobility, facility in turning, and the like, combined with the greatest safety. It is almost impossible for this car to be overturned. The horses are driven by a postilion who rides the near horse. The car can live with cavalry and can go wherever horse artillery can go. It occupies but little space and is easily concealed. Its cost is 65 guineas, or, when fitted up with instruments complete, 100 guineas. The contents are: a folding operation table (Jordan Lloyd's), an army regulation operation case, sterilising apparatus for instruments, operation waterproof aprons, Eston tourniquets, Eston instruments, needles, &c., splints (arm, leg, thigh, and finger), dressings, sutures of wood wool, &c., roller and triangular bandages, chloroform and inhaler, subcutaneous injection syringe and tabloids, bottles of antiseptics, cocaine, &c., sponge cloths, compressed food, Maggi, bovril, &c., aluminium bowls, utensils, &c., and a Berkefeldt filter.

"The 'flying ambulance' is built on the same principle as the hospital car, but is slightly longer, being 6 ft. 6 in.; the width is the same. In the well, or body of the car, are two stretchers, side by side, of ashen poles and wire-woven body. The handles of the stretchers at each end fit on and can be securely fastened to the ends of a carriage spring, the centre of which is screwed into the floor of the body. The roof is open but spreads out over the wheels on either side, forming a skeleton platform, on which are screwed carriage springs for stretchers similar to those inside. The platform will accommodate three stretchers, yet give plenty of ventilation to those below, and ventilation is also provided by the louvred sides of the body. A sixth stretcher is carried and can be placed in emergency, transversely across the front, above the water cylinder. Seats are provided at the back for two attendants. The car carries a lever, a pick, and so on, and a few medical comforts. An awning is also provided against rain or too great sunlight. The cost of the ambulance car is 65 guineas complete.

"The flying hospital and flying ambulance cars are designed to act and work together in harmony. They will follow the fighting line in rear of the supports and in front of the reserves. The moment casualties begin to occur the hospital car is brought up to a sheltered spot as near as can be done with safety from fire, the table is set out, and instruments and dressings are prepared. The bearers unhitch the stretchers from the ambulance and bear them to the front to pick up the wounded and carry them to the place where the cars are standing. This spot becomes at once a collecting station and a dressing station. As the wounds are dressed those wounded in the lower extremities and body are placed in the 'flying ambulance' and taken to the nearest field hospital or bearer company, to the commander of which details are furnished as to the position of the hospital car and probable number of wounded; the ambulance then returns. If the horses of the hospital

[1] THE LANCET, Oct. 28th, 1899, p. 1193.

car have not been too much fatigued beforehand the car itself can be used for the transport of those wounded in the upper extremities or head, who are retained in their seats by means of straps arranged for that purpose. The staff required will be: Two surgeons (mounted), one orderly (mounted), one non-commissioned officer (mounted), one non-commissioned officer on the hospital car, eight bearers on the hospital car, two bearers on the ambulance car, and two drivers, one for each car."

(NOTES FROM SIR WILLIAM MACCORMAC.)

(*Continued from page 123.*)

Frere, Dec. 14th, 1899.—This morning the camp here is practically no more. The striking of tents and moving off of the corps began at 1 P.M. yesterday and continued until this morning, so that by 6 A.M. nothing remained of the 22,000 men of yesterday but a long snake-like train of bullock waggons conveying commissariat supplies winding as far as the eye could reach along the Chieveley road. We breakfasted at 6 A.M., and before 6.30 we had taken the road in our ten-mule waggon *en route* for our hill of observation about three miles along the Chieveley road. The road was blocked with heavy waggons escorted by weary baggage guards, and the dust and heat were terrific. We gradually worked our way along until we managed to get clear of the rest and by a side road succeeded in reaching our hill about 7.30 A.M. We saw with ease the whole army yesterday at Frere, already re-encamped beyond Chieveley, and apparently about two or three miles from the Tugela. The long train of commissariat waggons reached the whole way along from Frere, by a winding road, to the new camping ground, and long after we could see the first waggons entering the new camp the seemingly endless succession was still issuing from Frere. A bearer company flying its Red Cross flags was seen heading the procession. The reasons for the slow movement of an army in the field were vividly demonstrated to us as we watched this interesting movement. We could see nothing of the Boers across the river, but about 9 A.M. several of our guns opened fire at the range of hills between the river and Ladysmith and we watched the shells bursting far away without any response. Are the Boers in concealment or have they really retired as has been reported? We returned to camp about noon. The place now looks very dreary and deserted and consists of practically nothing but half an infantry battalion as a guard and our No. 4 Stationary Field Hospital on the lines of communication. The hospital train, under Major Brazier-Creagh, R.A.M.C., has just moved on to Chieveley awaiting events. No. 4 Stationary Hospital received a warning this evening from the principal medical officer that the hospital must be ready to move at short notice so as to be as near as possible to the battle which was expected to take place on the morning of the 15th.

Dec. 15th.—The booming of big guns and the rapid reports of the quick-firing machine-guns commenced at daybreak. About 5 A.M. a message was received from the principal medical officer to entrain the hospital and proceed to Chieveley, there to await further orders. A fatigue party was at once applied for from the Royal Scots Fusiliers and the work of storing the impedimenta and striking the tents was commenced at once. 24 sick (including two officers) now in hospital were despatched to Pietermaritzburg, so as to leave us ready to receive the sick and wounded in our new quarters to-night, wherever those may be.

Dec. 16th.—We arrived at Chieveley station about 1.30 P.M. yesterday. The cannonading had ceased about 1 o'clock. We found the station occupied by a hospital train under Major Brazier-Creagh, R.A.M.C., and everyone available helping to provide comforts for the freight it carried. There were 119 wounded in the train. They had been taken on board direct from the field, the train having run into the actual scene of action: in fact, it was ordered back by the principal medical officer, two shells having fallen close to it. This train carried the first results of the battle, and it was a very distressing sight. The wounded filled the carriages just as they had come from the field; every wound had been dressed, and had been dressed extremely well, under fire. A noticeable feature was the fact that very few of these dressings needed re-adjustment. Rifle splints, tourniquets, and other dressings had been adjusted carefully and deliberately, under circumstances of great difficulty and danger. There had been, we learned, a rush with the wounded to the train, which was rapidly filled and had then immediately steamed away, and when we saw it at Chieveley, four miles from the battle-field, the men were still under the excitement of the action. The wounded were cheerful and thankful for their treatment, many remarking that their chief anxiety was to get back soon enough to pay the Boers out. We saw the train start away for Estcourt (it was back again at Chieveley last night). On its arrival No. 4 Hospital was immediately unloaded and the erection of the tents began at once, before the weary officers and men of the Royal Army Medical Corps had had a chance of sleep. The Stationary Hospital was yesterday, therefore, evacuated of sick at Frere, the whole equipment packed and brought to Chieveley, the tents re-erected, made ready for 100 wounded, and almost immediately they received about 50—all this being completed between 7 A.M. and midnight (strength, 4 officers and 37 men of the Royal Army Medical Corps).

To return to ourselves, having obtained the necessary information and permission we walked to the field hospitals of the 4th, 5th, and 6th Brigades, situated about three miles from Chieveley under the crest of a hillock about 400 yards outside the fire zone. The state of these hospitals at the time of our visit (4 30 P.M.) is almost beyond description. Captain Symons and myself visited the three operating tents one after another, where my opinion was continually requested by the medical officers in charge—Major Coggin, Major Heuston, Major Culling, Major Wilkinson, and Major Young—about various cases. Each of the three operating tents contained two operating tables and as fast as a patient was taken off the table another took his place. Awaiting their turn the wounded were lying outside in rows which were being continually augmented by the civilian bearers coming in from the field. As each wounded man reached the hospital he was served with a hot cup of bovril, large cans of which were boiling outside the tents. The way in which the wounded had been dressed upon the field and each man ticketed with the nature of his wound, his name, and regiment was excellent and was very useful for identification. This also saved much time at the field hospitals, because the seriously wounded could be at once discriminated from the more trivial cases. The latter went away at once to the tents and the former were re-dressed and operated upon when necessary by the four officers of each of the field hospitals and the three surgeons of each of the bearer companies. The praise of the regimental officers and men in respect to the way in which the Royal Army Medical Corps had done their duty under heavy fire was unanimous and unstinted. An officer of the Devons, wounded in the foot, told me that he managed to get to a hut near the bank of the river which was being used as a dressing station. This hut was continually under heavy fire, and he described the behaviour of the medical officers as magnificent.

The spectacle at the field hospitals was most painful. Ambulance waggon after waggon and stretcher squad after stretcher squad came in while I was there, pouring in the wounded, some of whom had died on the way and could unfortunately only be carried to the mortuary tents. The work performed in the operating tents was, in my opinion, of great efficiency, the operations being deliberately carried out with skill and dispatch under the very trying circumstances of intense heat, hurry, and excitement all round. The Royal Army Medical Corps officers of these hospitals had started their surgical work about 3 A.M., and when I visited them in the evening they were still hard at it, having had no food meanwhile and no time for rest, and the work went on for hours afterwards. I gave advice in many cases where I was asked, and advised against operation in the case of a poor fellow with a fearful shell-wound of the hip. Altogether some 800 patients passed through the field hospitals during the day. The men showed the utmost pluck and endurance; there was not the smallest despondency, the predominant feeling being anxiety to return and fight again. This was very splendid of them after such a day as they had experienced and makes one feel very proud of their fine mettle.

The hospital trains rapidly took them away. Each train carries on an average 100 cases and is equipped with every possible requirement, besides iced soda, champagne, soup, and other comforts in abundance, so I am certain that all that human foresight could accomplish was done during the journeys for the mitigation of the sufferings of the wounded. The first train, which was for a time under fire, left the immediate vicinity of the battle-field at 2 P.M. with 119 wounded; a second train was despatched at 8 A.M. on the 16th; a third

at 2 P.M. on the 16th; a fourth at daylight on the 17th; and a fifth at 8 A.M. on the 17th—a very quick succession. All the field hospitals were empty at daybreak on the 17th, and this was done, notwithstanding that they were obliged to move the hospitals in the midst of their work to escape from the zone of fire.

Poor Captain Hughes, R.A.M.C. (on General Buller's staff, an officer of the highest merit and promise), was killed by a bullet which severed the innominate artery, and Major Brannigan, R.A.M.C., was seen by me shot through the foot. Major Stuart-Wortley, Rifle Brigade, who officered the 2400 volunteer ambulance bearers, did splendid service and I heard him report about 5.30 P.M. that the whole field was then clear of wounded, which was very rapid and good work. When I saw that I could do no more personal work for these hospitals we returned to No. 4 Stationary Hospital at Chieveley station and managed to get a shake-down in the deserted and dismantled house of the station-master. During the night I assisted Major Mallins to perform a laparotomy on a man whose intestine had been pierced in two places with a very successful issue up to the date of writing (vide recorded cases). It is worthy of note that the operation was performed in a tent (equipped with everything needful) in a hospital which had been in full activity eight miles away on the morning of the same day. The conveyance of the wounded by stretchers from the field hospitals and from the field to this hospital has been going on the whole evening, many being carried from five to seven miles with great comfort and at the same time more marquees are being pitched, so that 200 beds may be shortly ready. All the marquees are provided with iron beds, wire-spring bottoms, and hair mattresses, the gift of a Durban gentleman. Two army nursing sisters (Miss Sammut and Miss Martin) are hard at work doing excellent service under difficulties. One of the ambulance waggons which went too far under fire in the morning was blown up by a shell (accidentally, no doubt). Fortunately there were no patients in it, and the drivers escaped unhurt.

Dec. 17th.—Yesterday and the day before were indeed days of hard work. A hospital train, filled with wounded, had arrived from the field hospital about 8 A.M. (16th) and discharged many of the more severely wounded into our stationary hospital. A second hospital has now been added to ours under the command of Major Baird, R.A.M.C., assisted by Captain Begbie. The two operating tents are constantly busy. I was consulted about many cases and assisted at several operations. In the afternoon I performed an amputation of the right thigh for a fracture of the femur in which gangrene of the leg had supervened. There were many abdominal and lung cases, but comparatively few of these required operation, being either of a favourable character or the patient being too ill to allow of interference.

An order having been given last evening for the brigades to retire on Frere, No. 4 Hospital became of necessity crowded by the wounded of the field hospitals belonging to those brigades. By 10 P.M all the wounded had been found sleeping-places, but there were no more beds to spare. The medical officers could now do no more till morning than see that the serious cases obtained morphia, milk, and needful comforts. Everyone was exhausted and almost fell asleep at his duties. This morning the brigades have left and we hear that the whole army is to retire on Frere. Water is very scarce indeed. There will probably be no further fighting for the present, and as all the wounded will have left the front by midnight to-night the principal medical officer (Colonel Gallwey) has advised me to return to Pietermaritzburg. Considering the great strain of the work and the number of the wounded after this hotly contested engagement (where both rifle and shell fire were something, it is said, never seen before) I would like to draw attention to these facts: 1. The skill and care displayed in treating compound fractures and injuries requiring calm attention and time under heavy fire. 2. The skilful and efficient way in which serious major operations were performed on the same day as the battle (under considerable pressure and disadvantages) by the medcal officers of the field hospitals. 3. 800 wounded were cleared from the field by 6 P.M., the action having finished at 2 P.M. 4. By midnight on the second day after the battle (to-night) the last wounded man will have left the hospitals at the front and will have been conveyed to Estcourt, Pietermaritzburg, Durban, and the hospital ships. 5. Eight train-loads have been taken away in the hospital trains in two days. There can be no doubt in the minds of those who have watched the proceedings at the front that a trying emergency has been met, under circumstances of extreme tension, with complete success, and I know that the army has had the greatest confidence in its medical corps and feels that all has been done for the wounded that could have been done. I accordingly returned this morning in the hospital train (conveying 120 wounded) to Pietermaritzburg. The heat has been intense. We have had three very busy hard-working days and returned weary and sad for such grievous loss and suffering. It was indeed a piteous spectacle of suffering and death; but one could console oneself somewhat by the reflection that so much had been accomplished to mitigate the distress, and the poor sufferers themselves were full of pluck and endurance. I append short notes of the more interesting cases which have come under my notice amongst the wounded in the battle of Dec. 15th at Chieveley and Colenso. These are, however, of necessity extremely brief. The pressure and tension under which everyone was working made the taking of any notes almost impracticable.

HEAD INJURIES.

CASE 1.—The wound was over the right mastoid. There was no wound of exit. Bleeding occurred from the right ear. There was paralysis of the right upper extremity. The direction taken by the bullet is not known. No interference is contemplated at present.

CASE 2.—The bullet entered near the left parietal eminence. The exit wound, with comminution and much elevation of bone, was through the left frontal eminence. Lieutenant Simson, R.A.M.C., trephined, after consultation with me, on account of increasing tendency to coma, twitching, and facial paralysis. The pulse and respiration were slow. Several fragments and a large portion of the elevated fragments were removed, thus allowing free drainage. There was a considerable amount of clot which was removed. There was great improvement of the paralysis an hour after operation.

CASE 3.—The entrance wound was in the temporo-parietal region. There was no wound of exit. There was complete aphasia, but no other symptoms. The treatment was expectant.

CASE 4.—The bullet entered two and a-half inches behind the left mastoid process. A probe was passed inwards through the opening of the skull as far as the temporo-sphenoidal lobe, where the bullet was supposed to be lodged. No symptoms were present. The treatment was expectant.

CASE 5.—The entrance wound was over the right frontal eminence. The exit was two inches above and half an inch to the right of the occipital protuberance. There was a large depressed fracture in front. Hemiplegia was present on the left side. The right pupil was widely dilated. There was no facial paralysis. Some fragments of frontal bone were embedded in the brain and were removed. A flap incision was made which connected both openings and a fissured fracture was found between the exit and the entrance wounds, through which there was free bleeding from a branch of the middle meningeal artery. The skull was trephined and bone was removed close to the anterior opening, and bleeding was arrested by plugging. The wound was dressed. The temperature three days after injury was 100·4° F. (in the evening).

WOUNDS OF THE LUNG.

CASE 1.—I saw with Major Mallins the case of a man with the entrance wound through the upper part of the left deltoid muscle. The bullet emerged near the eighth rib on the right side, four inches from the spine. The bullet must have traversed both lungs and the vertebral column, as there was complete paraplegia from the umbilicus downwards. I advised, of course, against operation. The man presented on his chest and both arms splendid examples of tattooing. Poor fellow!

CASE 2.—The bullet entered just at the acromion process of the right scapula; it must have traversed both lungs, as it emerged on the left side on a level with, and two inches from, the last dorsal spinous process. He had slight hæmoptysis, but no other symptoms whatever, and is doing quite well.

CASE 3.—This man was lying down when shot. The bullet first passed through his helmet, then entered at the superior internal angle of the left scapula, and emerged opposite the middle of the sixth rib on the same side. There

was slight hæmoptysis, which has passed off. He feels, he says, quite well and apparently is so.

CASE 4.—The entrance wound was through the middle of the right deltoid. The exit was opposite the tenth dorsal vertebra one inch to the right of the spine. There was much pain and dyspnœa but no hæmoptysis. His general condition was otherwise favourable. The treatment was expectant.

CASE 5.—The entrance wound was through the right infraspinous fossa below the centre of the spine. The exit was on the left side below the last rib in the mid-axillary line. No symptoms of any kind have shown themselves.

CASE 6.—The entrance wound was in the third intercostal space, on the left side, in the anterior axillary line. There was no exit wound. There was some dyspnœa which subsided. He is doing well.

CASE 7.—The entrance wound was in the third intercostal space, three inches from the right margin of the sternum. The bullet emerged two inches below the inferior angle of the right scapula. The man ran 500 yards after the injury. There was slight hæmoptysis, but no other symptoms. He is doing quite well.

CASE 8.—The entrance wound was just beneath the right coracoid process, but the bullet was cut out from beneath the skin in the opposite lumbar region, where a large hæmatoma was present. He is getting on quite well. No other external injury can be found and it is supposed the hæmatoma and bruising may possibly be the effect of a shell explosion. There were no chest symptoms.

CASE 9.—The entrance wound was beneath the anterior fold of the right axilla. The exit was at a precisely corresponding point on the left side. He had hurried respiration, but the pulse and temperature were normal. There was no hæmoptysis. He is apparently doing well.

CASE 10.—The bullet entered at the tenth rib, four inches from the spine on the right side. The rib was fractured at the point of entrance. There was no exit. There were no symptoms with the exception of a little pain and cough on movement, accompanied by some hæmoptysis.

WOUNDS OF THE ABDOMEN.

CASE 1.—I was sent for last night after my return by Major Kirkpatrick (senior medical officer of No. 4 Stationary Hospital) to see a case of abdominal injury. A bullet had entered on the left side, behind, about two inches vertically above the posterior-superior spine of the ilium. There was no exit wound. The poor fellow had been wounded some hours before and was now lying with a tense abdominal wall and suffering much pain. I advised exploration. There was evident incipient peritonitis, but nothing to indicate in which direction the bullet had travelled. Major Mallins performed the operation and I assisted him. He made a median incision below the umbilicus. After opening the abdomen a slight fæcal odour was perceived. The pelvis was full of fluid blood and on handling the intestine gas bubbled through the blood. After careful search two wounds were found about one and a half inches apart in the ileum. These were closed by Lembert's sutures applied in the long axis of the bowel. No other lesion could be discovered. Saline washing out afterwards and closure of the external wound were performed. This morning the condition of the man was favourable. The operation was done in a tent with a very poor candle light and under all the difficulties incidental to the situation. Major Mallins performed the operation with much care and in quite an admirable manner. In the first operation in this hospital, I hope the man may recover, but nothing could be seen of the bullet, and it may have caused further injury.

(After doing well for two days collapse set in and death followed.)

CASE 2.—The entrance wound was just below and external to the anterior superior spine of the ilium on the left side. The exit wound was at a corresponding point on the right side. Apparently it was an intestinal injury. The man had peritonitis and his condition precluded any operation. There was no blood in the urine when drawn off.

CASE 3.—The entrance wound was below the ninth right costal cartilage. The exit wound was near the first lumbar spine close to the spinal column on the same side. There were no symptoms.

CASE 4.—The bullet entered opposite the last dorsal vertebra, a short distance from the spine on the left side, and emerged at the anterior superior spine of the ilium on the right side. There were no symptoms.

CASE 5.—The bullet entered one inch from the spine on the right side at the level of the tenth dorsal vertebra. There was no exit wound. He walked about 20 yards to a ditch. Paralysis of the left lower limb followed in the night and great pain down the back of the thigh. The pain was now gone and paralysis only remained in the foot. The treatment was expectant.

CASE 6.—The bullet entered at the margin of the right rectus muscle on a level with the ninth rib. The exit was close to the spine, immediately above the posterior superior spine of the ilium on the right side. Peritonitis had set in and the man's condition was already hopeless. No operative interference was justifiable.

CASE 7.—The entrance wound was one inch above the right posterior-superior spine of the ilium. The exit was in the semilunar line at the level of the umbilicus on the left side. There were no symptoms. The treatment was expectant.

CASE 8.—The bullet entered just to the right of the last dorsal vertebra. There was no exit wound. There was paresis of the lower limbs. The abdomen was rigid. Peritonitis was present. No operative interference was warranted.

CASE 9.—This was the case of a young officer. The entrance wound was one inch above and one inch to the inner side of the left anterior-superior iliac spine. The exit wound was at the sacro-iliac articulation. There were wounds of the rectum and of the sigmoid flexure, compound fracture of the forearm, and shell injury to the knee, joint probably unopened. He was too ill for operation and died at midnight, Dec. 16th–17th.

CASE 10.—The entrance wound was over the eighth rib in the mid-axillary line on the right side. The bullet was cut out at a point one inch to the right of the first lumbar spine. Both wounds have healed. There were cough and slight hæmoptysis. There were very severe hæmaturia and blood in the stools which still exist to a certain extent. The last urine was much clearer. The temperature three days after injury was 101° F. (evening). There was also a flesh wound through the supinator muscles of the right forearm, high up. Two days later there was a steady improvement.

WOUNDS OF THE LOWER EXTREMITIES.

CASE 1.—The entrance wound was at the middle of the thigh anteriorly. There was no exit wound. The femur was fractured. Splints were applied.

CASE 2.—This was a large shell-wound of the right hip. A mass of flesh of the size of a cocoanut was gouged out between the tip of the trochanter and iliac crest, which was extensively fractured. The anterior portion of the ilium was also comminuted. I found the femur intact, but the upper surface of the hip-joint was laid bare, and the capsule was apparently intact. I removed a large piece of the ilium and left another fragment which was attached. The wound was stuffed. The surgeon in charge was contemplating amputation at the hip-joint, which I dissuaded him from as it did not appear to me to be indicated. I saw this man in the base hospital on Dec. 19th, doing quite well, and the hip-joint apparently intact. His temperature was normal.

CASE 3.—A poor fellow received a gunshot wound on the outer side of the middle of the thigh. This caused a comminuted fracture of the femur, and when I saw him to-day there was a dark patch of gangrene on the outer side of the leg. There was no exit wound. I advised amputation close to the seat of fracture. The limb was much swollen and infiltrated and the artery was obliterated. At the invitation of Major Mallins I amputated the limb, and on examination the lower third of the femur was found to be very extensively shattered and the femoral artery was torn across just as it passed through the opening in the adductor magnus, probably by a sharp fragment of bone which was found projecting at this spot. This was the first amputation performed in the hospital, and I preserve the specimen as a good example of its kind for presentation to the Royal College of Surgeons of England by its President. Two days later the man was doing quite well.

CASE 4.—A man arrived this evening shot through the foot. The bullet had traversed the instep from above downwards and forwards, and was firmly impacted in the sole of his boot. It had just gone through the sole, which was very thick, starting a nail and just showing the nose of the bullet outside, while inside the boot the bullet projected a quarter of an inch above the sole.

CASE 5.—A bullet entered two and a half inches below the left tibial tubercle on the inner side. The exit wound was at the back of the calf at the same level passing through the tibia. 24 hours later there was no pain—the man could stand on his limb if he tried and there was certainly no complete fracture. He lay eight hours on the battle-field.

CASE 6.—A bullet entered the middle of the thigh anteriorly and emerged at the upper part of the popliteal space in the median line. A gangrenous patch had formed on the dorsum of the foot and over the external malleolus. The popliteal artery had no doubt been damaged. The patient is in perfectly good condition, with a normal temperature, and says that he feels nothing the matter with him. The general circulation in the limb is re-established. I advised waiting for a clearer definition of the limits of the gangrene. There is just a chance that a Syme's amputation might be performed, but it will be more probably necessary to amputate below the knee-joint.

Those wounds which I saw but a few hours after they were inflicted were all quite small at both the entrance and exit apertures. There was no hæmorrhage and nearly all had become sealed up spontaneously. The rapid manner in which they heal, or close up, rather, under a scab, is quite extraordinary. I have not seen any suppuration and external hæmorrhage is quite exceptional. What causes me never-ending surprise is the number of wounds traversing the lung, and in many instances both lungs, without causing greater inconvenience than temporary and insignificant hæmoptysis, and often not even that. Another feature is the number of abdominal wounds in which no serious consequences have taken place, wounds in which from the direction taken by the ball (which may be assumed to be a straight course from the entrance wound to the exit wound) it is impossible to conceive that the visceral contents have escaped perforation, and in which, nevertheless, no serious consequences arise. It may be that the opening in the intestine is so small that it closes up, as the external wounds certainly do, without allowing extravasation to occur. In three instances in which I saw wounds of the intestine of this sort after laparotomy it appeared to be quite conceivable that this could actually happen and that it does happen. Either mortal damage is inflicted, in very many instances, when no operation is feasible, or the injury is recovered from without inconvenience to the sufferer. The most extraordinary head wounds with damage to the brain seem also in many instances to entail no mortal results.

Pietermaritzburg, Dec. 20th, 1899.—The notes of the cases following were taken at Pietermaritzburg on Dec. 20th. They are of cases wounded at the battle of Colenso on Dec. 15th.

HEAD INJURIES.

CASE 1.—The entrance wound was in the middle line of the nape of the neck, opposite the third cervical spine. The exit wound was on the left cheek, one inch external to the ala of the nose and on the same level. The superior maxilla was fractured and the upper molar teeth on that side were dislodged.

Second wound in the same case.—The entrance wound was two inches above and 1½ inches behind the tip of the left trochanter major. The exit was one inch below the fold of the right buttock and one inch behind the femur. There were no symptoms.

CASE 2.—The entrance wound was in the right coronal suture, one and a half inches from the median line. The bullet passed through the left side of the palate opposite the second molar tooth and was cut out of the neck on a level with the hyoid bone in a line with the angle of the jaw. The wounds healed. No symptoms were present and I found the man walking about against orders. The sight of the right eye is impaired, definition is absent but vision is not lost. He said that he felt perfectly well and did not see why he should be kept in bed.

CASE 3.—The entrance wound was one inch in front of the right parietal eminence. The exit wound was at the superior curved line of the occipital bone on the right side one and a half inches from the middle line. There were symptoms of cerebral irritation present. The skull was trephined at the entrance wound and small pieces of bone were picked out and some brain substance was removed. Nothing was done at the exit wound. The symptoms were relieved by the operation. The pulse was slow (50 per minute). There was no headache. He also had walked about against orders, saying that he felt so well and had so little the matter with him. The grasp of the left hand was not so strong as the right.

CASE 4.—The bullet entered through the right side of the lower lip about three-quarters of an inch from the free border and became lodged in the lower jaw at the situation of the second premolar tooth on the same side. The bullet is still there and a radiograph taken indicates the situation. There is nothing of special interest about this, for all cases of bullets lodged in doubtful situations are radiographed.

CASE 5.—The bullet entered opposite the midpoint of the sagittal suture and one inch to the right of the median line. The exit was apparently through the lambdoidal suture two inches to the right of the median line and two inches above the superior curved line. There was some vomiting at first, but this soon disappeared. The bullet was found on examination to be tightly wedged in the exit wound, having only in part emerged from the skull, the point projecting through the skull. It was removed with some small portions of bone. The entrance wound was left alone. Five days after injury the temperature was normal; both wounds had healed, and the patient was doing well.

CASE 6.—The entrance wound was a little internal, and one inch anterior, to the left parietal eminence. Another wound, probably the exit wound, was one and a half inches above the left zygoma and half an inch anterior to the pinna of the ear. It may be a second wound but probably is not; there is no other. Five days after injury the pupils were very dilated, but equal; there was facial paralysis on the right side; the right arm was paralysed, but the paralysis was diminishing; the right leg was also slightly paralysed, but was now recovered. No operation has been performed up to date as the patient seemed to be improving. The pulse was 54. He cannot speak properly, but his intelligence appears to be normal. His general condition is not quite satisfactory, however.

CASE 7.—The entrance wound was one inch anterior to the right parietal eminence and one inch nearer the middle line. The exit was slightly to the left and just above the occipital protuberance. On admission the patient was drowsy. His pulse was 56. There were occasional attempts at getting out of bed. There was no paralysis, but he was very irritable. An incision was made four days after the battle over the entrance wound. A depressed fracture was found about one inch in length with fissuring extending towards the exit wound. He was trephined at the entrance wound. One day after operation he could speak; his pulse is now about 70 and there is no paralysis.

CASE 8.—Before admission to the hospital at Pietermaritzburg this patient had already been trephined. The left pulse could hardly be felt but the right one was very strong. A piece of bone had been removed over the left parietal eminence where the entrance wound was situated. The exit wound was situated at the junction of the parietal and occipital bones near the apex of the lambdoid sutures and a little to the left. There was paralysis of the right arm. The pupils were dilated but equal. He is now perfectly intelligent (five days after the injury) but can remember nothing before the operation. There is no facial paralysis, but he cannot whistle quite distinctly. There is no leg paralysis.

WOUNDS OF THE ABDOMEN.

CASE 1.—The entrance wound was two and a half inches to the left of the spine of the eleventh dorsal vertebra. The exit wound was just to the left of the middle line of the abdomen and three and a half inches below the ensiform cartilage. The wounds healed. There were no symptoms.

CASE 2.—The bullet entered the left buttock at the level of the great trochanter and two inches behind it. The exit wound was two inches vertically above the tip of the right trochanter. Blood was passed in the urine for three or four days, but this has entirely ceased. There is no blood in the stools and no other symptoms. The patient is doing quite well.

CASE 3.—The entrance wound was at the posterior superior spine of the right ilium. The exit was through the eighth intercostal space in the posterior axillary line on the same side. There were no symptoms. The wounds closed. The patient is convalescent.

CASE 4.—The entrance wound was two inches above and half an inch internal to the right nipple. The exit wound was just to the right of the median abdominal line, two inches below the ensiform cartilage. The wounds healed and there were no symptoms.

Second wound.—A bullet passed through the right instep from above, downwards, and inwards. These wounds are also closed.

CASE 5.—This patient presented three wounds. The first was about two inches above the lower angle of the left scapula and half an inch external to it. The second was at the lower fold of the right buttock three and a half inches from the anus. The third was half an inch anterior to the anus in the middle line of the perineum. He complained of soreness down the left side of the body and dyspnœa. Constipation was present but this has been remedied by enemata. There is no blood in the stools. There is pain on micturition, but no blood in the urine. The wounds have healed with the exception of the perineal one, up which a probe can be passed for one and a quarter inches. There is no hæmoptysis. Abdominal pain is doubtful; there is no tenderness. No urgent symptoms are present. The man seems to be recovering. No bullet has been localised.

CASE 6.—The bullet entered one inch above and one and a half inches to the right of the umbilicus. There was no exit wound. The patient complained of slight pain running round the right side but there were no other symptoms whatever. The wound healed. The patient feels well. He will be radiographed to search for the bullet.

CASE 7.—In this patient there was a jagged wound over the left fifth rib in the anterior axillary line. He stated that half his brace buckle was carried away. There was no exit wound. There was at first hæmoptysis, but this has disappeared. There are at present dyspnœa and cough, and much pain on coughing. He suffers great pain at night and requires morphia. He will be radiographed. The wound is probably not penetrating.

WILLIAM MACCORMAC.

(FROM OUR WAR CORRESPONDENT.)

I have already drawn attention to the large number of wounded soldiers sent down to Wynberg, completely filling No. 1 and No. 2 General Hospitals, say to the extent of 1200 or more cases, taxing the resources of the establishments to their uttermost. Hence it became necessary to increase the number of general hospitals in the district. A third one has been brought into requisition. No. 3 General Hospital has been established at a very pretty place called Rondebosch, some three or four miles nearer to Cape Town. The camp, composed of tents, has been pitched on a grassy piece of land to the right of the Diocesan College, and has been laid out and equipped in a most satisfactory as well as expeditious manner. It should provide cot accommodation for another 500 cases. Lieutenant-Colonel Wood is principal medical officer and Major Keogh acts as secretary and registrar. After quitting the train at Rondebosch station by the Sandown road a walk of about 15 minutes brings one to the camping ground, on which are noticed the white tents to the right hand. The lines of hospital marquees cover a considerable extent of ground, which *locale* has been admirably chosen for the purpose owing to the comparatively level surface of the ground. At the bottom of this open space there runs a broad hard road, while a similar vehicular way is preserved in front of the hospital separating the tent of the officers and staff from the marquees below them. Large consignments of stores are observed lying about in various directions all covered with tarpaulins. These will soon be stowed away in appropriate quarters as soon as the tents or huts are ready to receive them. One of the canvas erections has been selected for dispensary purposes and within its walls may be observed any amount of medicines, drugs, disinfectants, surgical appliances, and antiseptic requisites. The quartermaster's store merits a share of attention, for within it are innumerable cases containing goods, as well as luxuries, the gifts of Lady Buller, who seems to have put her sympathy into practice by contributing a considerable share of the comforts to be found in No. 3 General Hospital. When one observes in an adjoining store the quantity of linen, hardware, crockery, &c., which is piled tier upon tier, it becomes plain to the most obtuse that little has been forgotten in equipment, and No. 3 may be well bracketed, as far as excellence of arrangement is concerned, with the two Wynberg hospitals.

At one quarter of the canvas town are two fairly-sized marquees set aside for the use of the nursing sisters, who entered upon their duties about the middle of the present month. I am given to understand that their staff is quite inadequate and incomplete, owing to six of their number having been sent round to the Natal side. No doubt these will return to Rondebosch when the wounded cases come down and their services are required. Behind the stores is located the operating-room, a canvas erection of course; as it is somewhat small for the purposes intended it will possibly be superseded before long by a larger and more substantially built structure. Instruments, operating table, and every other requisite appertaining to a minor theatre being fully in evidence conclusively prove how thorough have been the exertions of those who have had the fitting-out in hand.

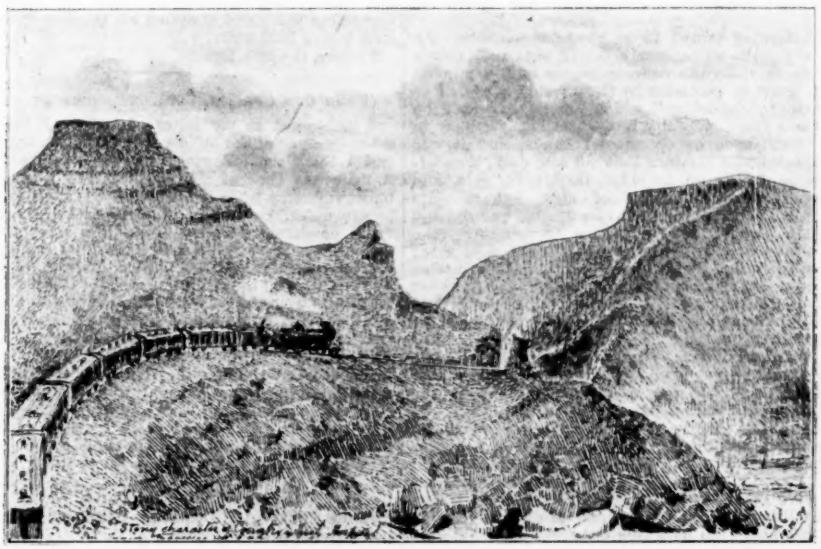
At any period in any campaign infectious diseases, more or less acute, must be looked for and have to be provided against. Hence the necessity of erecting an infectious ward which has been located away and apart from the other tents. The hospital marquees contain the usual number of cots. They are well ventilated and provided with tables, mess receptacles, and other conveniences necessary to a sick room. The ground is covered with tarpaulin, which can be easily cleaned or even removed at will. The soil on which the hospital tents are erected is a light sandy loam. Here great difficulty has been experienced in getting the tent pegs to hold, and no doubt, as at No. 2 Hospital, long iron pegs will have to be substituted for the shorter wooden ones.

Nothing gives a poor sufferer more comfort than a cheerful look-out. He has it at Rondebosch, at any rate, for a more charming and picturesque view could scarcely be imagined. The wounded can lie in their verandah chairs and look upon Table Mountain with its flattened top and enjoy one of the loveliest bits of mountain scenery it is possible to imagine. The temperature during the day is high, the thermometer registering as much as 86° F. in the shade; but there is no moisture to render it oppressive or unhealthy, and as the heat declines with the sinking of the sun the evenings and nights are delightfully pleasant and cool.

A trip to the front must now be referred to. Having duly received my permission to accompany the hospital train I proceeded to the old military hospital at Woodstock, one and a half miles from Cape Town railway station. This was originally intended for the reception of some 80 or 90 patients, but in consequence of the increased demand made by cases arriving from the shipping in the bay and medical cases coming from other quarters, the accommodation has been so much enlarged that upwards of 300 cases are at present treated within its walls. Colonel Supple, R.A.M.C., received me most kindly. To him and his assistants, as well as to Professor Stevenson and Major Conner, R.A.M.C., the hospital train owes the very efficient and highly successful manner in which it has so far been worked. There has been no delay, no breakdown, and everything up to the present has run smoothly, proving that in this special department at any rate the right men have been selected for the right places.

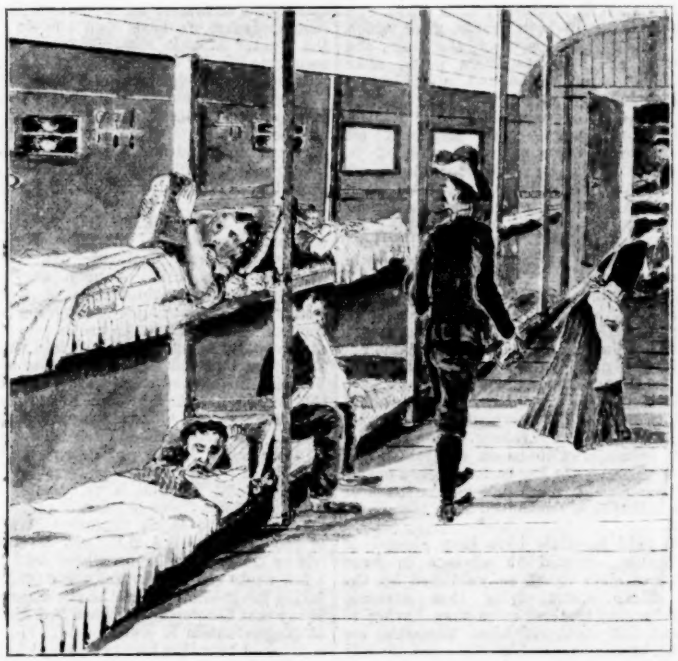
Our train was timed to leave Woodstock about six and within a few minutes of that hour we had quitted. On board the train were the following:—Major Russell, R.A.M.C., in charge; Civil Surgeon Gilbert, second in command; myself, Sister Rose Innes and Sister De Montmorency, two civil cooks, an engine-driver and staff, together with several orderlies, men of the Royal Army Medical Corps; the conductor or guard being a Mr. Southgate, an employé of the Cape Town railway staff. Evening was fast closing in by the time we reached D'Urban Road Junction, so that there was little opportunity of noticing the character of the surrounding country through which we travelled, but an appreciable ascent was noticed. Between 9 and 10 P.M. we reached Wellington and took aboard a fresh supply of water. Our arrival had evidently been anticipated, for several ladies and gentlemen were on the platform laden with fruit, flowers, and eggs which were handed to the Sisters for consumption by the sick and others on the train. Such spontaneous and profuse liberality on the part of the inhabitants needs only to be chronicled to be the more highly appreciated by friends and relatives in the mother country. As we ascended the course of the Hex river and were nearing the table land of De Doorns, some 1566 feet (see Fig. 1) above sea-level, the scenery was exquisite, a clear bright moon illuminating the flat-top ridges and intervening valleys for miles around. At this altitude the air was quite

FIG. 1.



Stony character of ground traversed by hospital train while bringing down wounded to Wynberg.

FIG. 2.



Interior of hospital train, showing arrangement of sick cots.

chilly, so much so that at midnight I was glad enough to turn in. Although the lines of rails are laid on a stony bed the oscillation was not by any means excessive, the vibration being reduced to a minimum by the use of first-class waggons and a combination system of springs.

The next morning proved to be a regular scorcher. An unclouded sky with an intensely bright sun, and not a breath of air to ruffle the delicate leaves of the mimosa trees which grow in profusion by the wayside, prepared us for a regular "brickfielder" which as the day wore on gradually made itself painfully felt. The hot air blew in scorching blasts upon our faces and hands, and it was with no inconsiderable pleasure that we saw dark, thunder-looking clouds gather on all sides, threatening rain, and the inrush of a cooler column of air. But in spite of the gathering gloom not a drop of rain fell, nor did any sensible reduction of the oppressive temperature take place. De Aar Junction was reached about 6.30 P.M., where there is a large camp. The Queensland contingent, which has been encamped here some days, moved northward this afternoon. From an officer I learnt that all the men were very fit and anxious to get into touch with the enemy. De Aar is 4180 feet above sea-level; but the water is said to be somewhat indifferent, and to its use some minor enteric local ailments are (very probably incorrectly) attributed. About midnight our train was once more *en route* for the Orange River, which station was reached about 6 A.M. the following morning. We had now reached a spot within measurable distance of our foe, for at 12 miles off the place where these notes were jotted down our patrol was fired on by the Boer scouts and one or two English officers and some men were shot. A very large force, therefore, is concentrated at this township. All water is drawn from the Orange river which runs as a light-coloured muddy stream to the northward of the railway station. The fluid is fairly good, and although discoloured by earthy matter is quite fit after boiling for drinking purposes. The train on the passage up did the journey at the rate of about 26 or 27 miles an hour, including all stoppages. At all the stations up and down presents of milk, flowers, eggs, and fruit were made by kindly-disposed sympathisers.

The general daily routine observed on board the hospital train (Fig. 2) was as follows: Rise at 5.30 A.M.; at 6, clean wards and utensils; at 7, breakfast; at 8, clean and scrub wards; at 11, parade in both wards, after which the medical officer inspected all parts of the train, the various orderlies being at their respective posts, after which patients' wounds were dressed and attended to. We took down 96 wounded in the train. At 1 P.M., dinner; at 3 the wards were again cleaned up; at 4 the medical officer in charge again inspected all compartments; at 5, tea. Three orderlies attended in each ward, being two hours on and four hours off duty. During loading and unloading of wounded each attendant is told off to a definite post. There is a civilian cook and assistant cook supplied to every train. No stimulants as a ration are supplied. An extra allowance ranging from 4*d*. to 8*d*. daily in addition to the usual pay is sanctioned to every attendant.

Visiting the Orange River Camp on Sunday I learnt that on the day when we felt the heat so oppressive on our way up the thermometer in single-fly tents there had registered the temperature as *115° F. in the shade*, whilst in the double-fly tents it stood only some nine degrees lower. Of the 96 cases received from the Orange River Camp the greater part were of a very serious character, principally gunshot wounds. There was one serious case of dysentery which terminated fatally a day or two after arrival at Wynberg.

Mr. Makins was a passenger with us on our return trip from the front to Cape Town. He has performed two operations for perforated colon successfully, but all the cases of perforated smaller intestine have succumbed after the operations were concluded.

All the advanced field hospitals have been cleared of their wounded and sick. Should an advance in force be decided on a clean slate must be exhibited by the principal medical officer accompanying that advance. Nothing would hamper any general more than having to carry his wounded and sick about with him. Casualties are expected and must be, of course, provided for; and already provision has been made both in the hospitals at the base and at the front for the reception of some 3000 more wounded and sick should the resources of these hospitals be unfortunately called into requisition. I enclose a sketch of the interior of the hospital train showing how the cots are arranged, also another of the train rounding a sharp curve when descending the Hex mountain.

I have to thank Major Russell, Civil Surgeon Gilbert, and Sister Rose Innes and Sister De Montmorency for especial courtesy and attention all the way up and down my long trip of 1200 miles.

Wynberg, Dec. 25th, 1899.

(FROM OUR SPECIAL CORRESPONDENT AT THE BASE.)

I mentioned in my letter of last week that the course taken by some of the bullets was little less than marvellous and I think the following case will bear out what I said. A man was shot at the Modder river engagement. The bullet entered a little above and to the right of the occipital protuberance, causing a "gutter fracture" and driving finely comminuted fragments of the inner table into the dura mater and occipital lobe, lacerating and contusing the cerebellum much; it then passed through the deep muscles of the neck and the space enclosed by the first rib, chipped fragments from the second and third dorsal vertebræ, driving them into the lung; then it grooved the eighth and ninth ribs, smashed the tenth and eleventh ribs, found an exit under the twelfth rib, passed through the deep muscles, and was discovered resting on the crest of the ilium. This man lived for some days after coming to the hospital, and he bore the journey down here well. Another interesting case was one in which the bullet entered a little above the posterior angle of the right scapula and emerged through the left malar bone. The patient was little the worse for his injury and the case opens up an interesting problem for the anatomist as to what important structures escaped injury in its course. The man was in a prone position when he was shot.

The last batch of wounded from Colenso is composed of not very serious cases and the patients are progressing favourably. Several cases of sunstroke have been coming down from the front, and all are agreed that the felt wideawake used by several of the colonial corps is not an adequate protection from the sun during this season of the year, and the sooner the Wolseley or Indian helmet is made *de rigeur* the better. The wounded officers in hospital number to-day 64, exclusive of convalescents sent to the sanatorium at Claremont. Up to date they are all progressing favourably and we have been able to send several back to the front. A large consignment of wounded officers and men have left for England in the *Pavonia*, mostly cases that will require extended treatment at Netley.

The instances where large arteries have been wounded and traumatic and diffuse aneurysms have resulted have been on the increase. During the past week several have been operated upon and it still remains a moot question whether ligature of the artery above the aneurysm or cutting down directly on it and turning out the clots and securing the bleeding points gives the best result; both procedures have been tried and I am inclined to favour the latter when possible. Fractures of the femur from bullet-wounds still occupy a great deal of our attention and their progress as a rule is very slow, but I am glad to say that the results as a whole are good and that the amount of shortening has been slight. One or two of these cases in which the patients had remained for some time on the field before being brought in have been received in a septic state and have done badly. Very few abdominal cases have been sent down, but those that have are on the high road to convalescence, in particular one in which the bladder was also wounded, in which the patient has done well and has been sent to Netley. There is again a lull in the proceedings, no fighting except a few skirmishes having taken place since the Colenso battle. No. 4 General Hospital is to be established at De Aar and is to leave Cape Town in a few days.

Everyone was much distressed at the news of the death of poor Hughes, R.A.M.C., and his loss will be especially felt by General Buller on whose staff he was. It was only a few weeks ago that he was going round the wards here and taking the greatest interest in the various cases. I am glad to say that Lieutenant Douglas, R.A.M.C., who was wounded at Magersfontein is nearly well. He had a very narrow escape. I hear that he has been specially mentioned for his bravery under fire.

I cannot help thinking that in future campaigns where the modern arms of precision are used it will be necessary to augment considerably the capacity of the present general

hospitals both for officers and men. The fact that accommodation in a general hospital as regards officers is limited to 25 cases points to a total inadequacy to the requirements. I consider that an officers' hospital of at least 100 beds should be a *sine quâ non*.

The hospital ships are working well, but up to date we have not been able to record the arrival of the *Princess of Wales*. Her advent will be welcomed, as we have several cases fit for the voyage but which cannot be sent by an ordinary transport.

Wynberg, Dec. 27th, 1899.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on Jan. 11th, the Senior Vice-President, Mr. H. G. HOWSE, being in the chair.

Mr. William Anderson, Mr. Herbert W. Page, and Mr. Bernard Pitts made declarations in the terms of the oath prescribed by the Charter of 1800 and were admitted members of the Court of Examiners.

The SENIOR VICE-PRESIDENT reported that Mr. Watson Cheyne had accepted an appointment as a consulting surgeon to the British forces in South Africa and had left England for the seat of war. The Council expressed their cordial approval of Mr. Watson Cheyne's patriotic action and granted him leave of absence for more than four consecutive meetings of the Council, according to the by-laws.

The SECRETARY reported the death on Dec. 30th, 1899, at the age of 85 years of Sir James Paget, Bart., D.C.L., LL.D., F.R.S., past President of the College, and stated that the College was represented by the Vice-President and several members of Council and officials at the funeral service in Westminster Abbey.

The following vote of condolence was carried:—

The Council hereby express their deep regret at the death of Sir James Paget, Bart., D.C.L., LL.D., F.R.S., and their very sincere sympathy with his family in their loss. The Council gratefully remember the many services rendered to the Royal College of Surgeons by Sir James Paget during his long association with it and they desire to record their appreciation not only of his eminence as a surgeon, his ability as a teacher, and his grace and eloquence as a speaker, but also of his admirable personal character which won for him the warm regard of all who knew him. The Council believe that no member of the surgical profession more fully enjoyed the confidence and esteem of his colleagues, they are assured that his loss will long be felt, and that his name will ever be placed in the foremost rank of those who have done good in their time and brought honour to their profession.

The Council, on the recommendation of the Committee for General Purposes, directed the following reply should be sent to the mover and seconder of the fourth motion carried at the annual meeting of Fellows and Members in November:—

That as the date of the annual meeting of Fellows and Members is announced in the College Calendar and regularly advertised in the principal medical journals, and as it is made known that any Member of the College may on application receive a copy of the annual report the Council are of opinion that sufficient notice is given of the meeting and that it is not necessary or desirable to further notify the date of the meeting or send a copy of the report through the post as suggested in Resolution No. IV. passed on Nov. 16th, 1899.

The Council decided to recognise for one year Cooke's School of Anatomy, Physiology, and Operative Surgery for the performance of the extra six months' dissections required for the Primary Fellowship Examination.

The Council proceeded to consider a report from the Discipline Committee on the resolution carried at the annual meeting of Fellows and Members in November asking for a pronouncement of the Council that the acting as medical officer for a medical aid association was contrary to the declaration made by Fellows and Members on their admission. The following motion was carried:

The Council strongly disapprove of Fellows or Members of the College associating themselves with medical aid institutions which systematically canvass and advertise for the purpose of procuring patients.

This resolution was directed to be sent to the mover and seconder of the motion referred to.

On the recommendation of the Discipline Committee it was resolved to send the following letter to the General Medical Council:

The Council of the Royal College of Surgeons of England have to inform the General Medical Council that their attention has from time to time been called to the conduct of certain persons whose names are entered on the Dentists' Register with the description "In practice before July 22nd, 1878."

The persons in question adopt such titles and descriptions as "R.D.S., R.S.C. Eng.," "R.D.S. Eng.," "R.D.S.E.," "Registered by the Royal College of Surgeons," thereby causing it to be inferred that they are connected with this College or the Scotch or the Irish College of Surgeons and thus infringing the privileges of the Licentiates in Dental Surgery of these Colleges.

The Council are of opinion that such conduct should be considered "disgraceful conduct in a professional respect," and that the persons in question should be deemed to have rendered themselves liable to removal from the Dentists' Register under Section 13 of the Dentists Act, 1878.

The Council desire to call the attention of the General Medical Council to an advertisement wherein a dentist who is on the Register because he was in practice before July 22nd, 1878, is described as "R.D.S.E. (Registered by the Royal College of Surgeons), Surgeon Dentist."

The Council have to state that this gentleman is not a Licentiate in Dental Surgery of the Royal College of Surgeons of England, and they beg to request that the General Medical Council will cause inquiry to be made as to whether he is a Licentiate in Dental Surgery of the Royal College of Surgeons of Edinburgh and, if it should be found that he is not, that the General Council will then call upon him to cease using a description implying that he is a Licentiate in Dental Surgery of one of those two colleges.

The Council further trust that the General Medical Council will take steps to make it known that the use of such misleading descriptions by persons registered under the Dentists Act will in future be regarded as "disgraceful conduct in a professional respect" and will render those using them liable to have their names erased from the Dentists' Register under Section 13 of the Dentists Act, 1878.

Mr. William Anderson was elected a Member of the Board of Examiners in Dental Surgery.

A letter was read from Mr. J. N. C. Davies-Colley, resigning, owing to ill-health, his membership of the Court of Examiners. The resignation was accepted and the Council expressed their sympathy with him in his illness.

The SENIOR VICE-PRESIDENT said that the vacancies on the Court of Examiners and on the Board of Examiners in Dental Surgery thus occasioned would be filled up at the Ordinary Council on Feb. 8th.

The VICE-PRESIDENTS announced that they had appointed Mr. N. C. Macnamara Hunterian orator for 1901.

The SECRETARY placed before the Council the new supplemental Charter under the Great Seal, dated Dec. 22nd, 1899.

A letter was read from Mr. Thomas Bryant reporting the proceedings of the General Medical Council at their late session, and the thanks of the Council were given to Mr. Bryant for his services as the representative of the College on the General Medical Council.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 7128 births and 6474 deaths were registered during the week ending Jan. 13th. The annual rate of mortality in these towns, which had increased from 18·9 to 30·9 per 1000 in the six preceding weeks, declined again last week to 29·1. In London the rate was 33·3 per 1000, while it averaged 26·3 in the 32 provincial towns. The lowest death-rates in these towns were 15·6 in Burnley, 16·1 in Cardiff, 17·5 in Huddersfield, and 17·7 in Oldham; the highest rates were 34·6 in Liverpool, 37·4 in Croydon, 43·6 in Norwich, and 44·9 in Nottingham. The 6474 deaths in these towns included 453 which were referred to the principal zymotic diseases, against 578, 523, and 506 in the three preceding weeks; of these 142 resulted from measles, 105 from whooping-cough, 89 from diphtheria, 56 from "fever" (principally enteric), 31 from diarrhœa, 27 from scarlet fever, and three from small-pox. No fatal case of any of these diseases occurred last week either in Derby or in Huddersfield; in the other towns they caused the lowest death-rates in Brighton, Birkenhead, and Burnley; and the highest rates in Wolverhampton, Salford, Preston, Blackburn, and Sheffield. The greatest mortality from measles occurred in Salford, Preston, Sheffield, Hull, and Sunderland; from scarlet fever in Blackburn; from whooping-cough in Portsmouth, Wolverhampton, Leeds, and Newcastle; and from "fever" in Wolverhampton. The 89 deaths from diphtheria included 49 in London, seven in Sheffield, four in Leeds, and three in Portsmouth, in Bristol, in Swansea, in Leicester, and in Blackburn. Three fatal cases of small-pox were registered last week in Hull, but not one in any other of the 33 large towns. There were 18 small-pox patients under treatment in the Metropolitan Asylums

Hospitals on Saturday last, Jan. 13th, against five, seven, and eight in the three preceding weeks; 10 new cases were admitted during the week, against five, two, and one in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2560, against numbers decreasing from 3578 to 2730 on the eight preceding Saturdays; 180 new cases were admitted during the week, against 209, 161, and 186 in the three preceding weeks. Influenza was certified as the primary cause of 340 deaths in London. The deaths referred to diseases of the respiratory organs in London, which had increased from 324 to 1221 in the eight preceding weeks, declined again to 994 last week, but were 260 above the corrected average. The causes of 79, or 1·2 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Bristol, Cardiff, Leeds, and in 11 other smaller towns; the largest proportions of uncertified deaths were registered in Leicester, Liverpool, Sheffield, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 27·2 and 25·6 per 1000 in the two preceding weeks, further declined to 23·1 during the week ending Jan. 13th, and was 6·0 per 1000 below the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 20·5 in Dundee and 20·6 in Greenock to 24·5 in Leith and 34·6 in Paisley. The 711 deaths in these towns included 20 which were referred to measles, 16 to diarrhœa, 14 to whooping-cough, six to "fever," five to diphtheria, and four to scarlet fever. In all 65 deaths resulted from these principal zymotic diseases, against 85 and 64 in the two preceding weeks. These 65 deaths were equal to an annual rate of 2·1 per 1000, which was slightly above the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of measles, which had decreased from 37 to 27 in the three preceding weeks, further declined to 20 last week, and included 12 in Glasgow, four in Dundee, two in Paisley, and two in Greenock. The deaths from diarrhœa, which had been 17 in each of the two preceding weeks, declined last week to 16, of which seven occurred in Glasgow and three in Aberdeen. The fatal cases of whooping-cough, which had been 17 and nine in the two preceding weeks, rose again to 14 last week, and included eight in Glasgow and two in Paisley. The deaths referred to different forms of "fever," which had been 10, six, and two in the three preceding weeks, rose again last week to six, of which four were registered in Glasgow. The fatal cases of diphtheria, which had been seven and three in the two preceding weeks, rose again to five last week, and included three in Glasgow, where three of the four deaths from scarlet fever were also recorded. The deaths referred to diseases of the respiratory organs in these towns, which had been 253 and 236 in the two preceding weeks, further declined to 203 last week, but were 47 above the number in the corresponding period of last year. The causes of 36, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 41·8 and 50·3 per 1000 in the two preceding weeks, declined again to 49·4 during the week ending Jan. 13th. During the past four weeks the death-rate in the city has averaged 46·0 per 1000, the rate during the same period being 33·9 in London and 22·2 in Edinburgh. The 331 deaths registered in Dublin during the week under notice were 6 below the number recorded in the preceding week, and included 31 which were referred to the principal zymotic diseases, against numbers decreasing from 72 to 18 in the eight preceding weeks. Of these 18 resulted from measles, five from "fever," three from diphtheria, three from diarrhœa, one from scarlet fever, and one from whooping-cough. These 31 deaths was equal to an annual rate of 4·6 per 1000, the zymotic death-rate during the same period being 2·0 in London and 0·7 in Edinburgh. The fatal cases of measles, which had declined from 24 to 10 in the three preceding weeks, rose again last week to 18. The deaths referred to different forms of "fever," which had been three, two, and five in the three preceding weeks, were again five last week. The three fatal cases of diphtheria were in excess of the average number in recent weeks. The deaths from diarrhœa, which had been five, one, and two in the three preceding weeks, rose again to three last week. The mortality from whooping-cough corresponded with that in the preceding week. The 331 deaths in Dublin last week included 34 of infants under one year, and 108 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a decline from the numbers recorded in the preceding week. Six inquest cases and five deaths from violence were registered, and 110, or nearly a third, of the deaths occurred in public institutions. The causes of 13, or nearly 4 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING DECEMBER, 1899.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality during December in each of the 43 sanitary areas of London. With regard to the notified cases of infectious diseases in the metropolis it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 8·8 per 1000 of the population, estimated at 4,546,752 persons in the middle of the year. In the three preceding months the rates had been 11·2, 14·4, and 12·6 respectively. The rates were considerably below the average in Kensington, St. George Hanover-square, Westminster, Hampstead, St. Giles, and City of London; while they showed the largest excess in Fulham, Rotherhithe, Camberwell, Greenwich, Lewisham, and Plumstead sanitary areas. Six cases of small-pox were notified in London during December, two in Hackney, two in Limehouse, one in Shoreditch, and one in Whitechapel; eight small-pox patients were admitted into the Metropolitan Asylums Hospitals, and seven remained under treatment at the end of the month. The prevalence of scarlet fever showed a further decline from that recorded in recent months; among the various sanitary areas this disease showed the highest proportional prevalence in Fulham, Strand, Holborn, Greenwich, Lewisham, and Plumstead. The Metropolitan Asylums Hospitals contained 2797 scarlet fever patients at the end of December, against 2836, 3406, and 3343 at the end of the three preceding months; the weekly admissions averaged 197, against 342, 426, and 304 in the three preceding months. The prevalence of diphtheria showed a slight decrease from that recorded in the preceding month; this disease was proportionally most prevalent in St. Martin-in-the-Fields, Shoreditch, St. Saviour Southwark, Newington, Camberwell, and Plumstead sanitary areas. There were 1679 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of December, against 1479, 1687, and 1718 at the end of the three preceding months; the weekly admissions averaged 184, against 210, 258, and 227 in the three preceding months. The prevalence of enteric fever in London showed a very considerable decline from that recorded in the preceding month; among the various sanitary areas this disease showed the highest proportional prevalence in St. James Westminster, Shoreditch, Bethnal Green, Limehouse, Poplar, and Newington. The Metropolitan Asylums Hospitals contained 406 enteric fever patients at the end of December, against 252, 341, and 460 at the end of the three preceding months; the weekly admissions averaged 52, against 41, 53, and 76 in the three preceding months. Erysipelas was proportionally most prevalent in Fulham, St. Pancras, St. Giles, St. Martin-in-the-Fields, Bethnal Green, and Rotherhithe sanitary areas. The 24 cases of puerperal fever included two each in Kensington, Hammersmith, Hampstead, Islington, Hackney, Bethnal Green, Poplar, and Battersea sanitary areas.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various sanitary areas of the metropolis, the deaths occurring in the public institutions of London having been distributed among the various sanitary areas in which the patients had previously resided. During the four weeks ending Dec. 30th the deaths of 9520 persons belonging to London were registered, equal to an annual rate of 27·3 per 1000, against 18·7, 18·5, and 17·6 in the three preceding months; this high death-rate was principally due to the prevalence of influenza. The lowest death-rates last month in the various sanitary areas were 15·6 in Hampstead, 17·4 in Stoke Newington, 20·7 in Lee, 21·0 in Hackney and in Plumstead, and 21·5 in St. Martin-in-the-Fields; the highest rates were 34·7 in St. George Southwark, 34·8 in

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING DECEMBER, 1899.

(Specially compiled for THE LANCET.)

Sanitary Areas.	Estimated population in the middle of 1899.	Notified Cases of Infectious Disease: Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Deaths from Principal Infectious Diseases: Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
LONDON	4,546,752	6	1054	1105	2	443	1	24	423	—	3063	3·8	1	238	47	207	115	—	87	—	49	744	2·1	9520	27·3	187
West Districts.																										
Paddington	128,794	—	30	15	—	5	—	—	9	—	59	6·0	—	1	1	4	3	—	1	—	—	10	1·0	233	23·6	218
Kensington	172,899	—	23	20	—	9	1	2	16	—	71	5·4	—	6	1	3	—	—	2	—	1	13	1·0	333	25·1	231
Hammersmith	108,785	—	28	25	—	13	—	2	6	—	74	8·9	—	2	1	2	—	—	6	—	2	13	1·6	203	24·3	218
Fulham	130,720	—	48	43	—	18	—	—	22	—	131	13·1	—	28	5	6	2	—	1	—	2	44	4·4	297	29·6	225
Chelsea	96,721	—	20	13	—	6	—	—	8	—	47	6·3	—	7	1	1	1	—	3	—	3	16	2·2	210	28·3	229
St. George Hanover-square	80,876	—	15	8	—	3	—	—	7	—	33	5·3	—	3	2	3	6	—	—	—	1	15	2·4	146	23·5	154
Westminster	52,117	—	5	6	—	4	—	—	4	—	19	4·8	—	2	—	1	1	—	1	—	—	5	1·3	160	40·0	270
St. James Westminster	21,627	—	1	4	—	3	—	—	2	—	10	6·0	—	1	1	—	—	—	—	—	1	3	1·8	37	22·1	110
North Districts.																										
Marylebone	140,139	—	22	17	—	11	—	1	13	—	64	6·0	—	7	4	4	1	—	3	—	—	19	1·8	296	27·5	132
Hampstead	80,252	—	15	11	—	4	—	2	3	—	35	5·7	—	1	1	1	1	—	—	—	—	4	0·6	96	15·6	115
St. Pancras	244,548	—	34	55	—	28	—	1	26	—	151	8·2	—	6	1	9	5	—	4	—	5	30	1·6	572	30·5	225
Islington	348,065	—	76	45	—	16	—	2	22	—	181	6·8	—	11	3	18	9	—	9	—	1	51	1·9	738	27·6	189
Stoke Newington	35,187	—	9	4	—	2	—	—	2	—	17	6·3	—	—	1	2	—	—	—	—	—	3	1·1	47	17·4	138
Hackney	222,571	2	55	60	—	26	—	2	27	—	172	10·1	—	4	3	8	12	—	4	—	3	34	2·0	359	21·0	148
Central Districts.																										
St. Giles	37,196	—	4	2	—	4	—	—	6	—	16	5·6	—	2	—	1	—	—	1	—	—	4	1·4	77	27·0	211
St. Martin-in-the-Fields	12,142	—	—	4	—	1	—	—	2	—	7	7·5	—	1	—	—	—	—	—	—	—	1	1·1	20	21·5	500
Strand	23,016	—	8	3	—	—	—	—	2	—	13	7·4	—	1	—	1	—	—	—	—	1	3	1·7	61	34·5	281
Holborn	29,621	—	12	7	—	3	—	—	—	—	22	9·7	—	2	—	—	—	—	2	—	—	4	1·8	72	31·7	227
Clerkenwell	66,068	—	8	11	—	9	—	—	7	—	35	6·9	—	1	1	3	6	—	2	—	13	26	1·64	164	32·4	283
St. Luke	40,868	—	8	10	—	3	—	—	3	—	24	7·7	—	1	1	—	1	—	—	—	—	3	1·0	98	31·3	44
City of London	27,986	—	7	3	—	2	—	—	—	—	12	5·6	—	1	—	—	1	—	—	—	1	3	1·4	64	29·8	69
East Districts.																										
Shoreditch	121,071	1	13	42	—	17	—	—	16	—	89	7·6	—	3	4	8	4	—	2	—	1	22	2·4	282	30·4	152
Bethnal Green	128,938	—	20	19	—	24	—	2	22	—	87	8·8	—	6	—	6	12	—	5	—	1	20	3·0	302	30·5	220
Whitechapel	81,391	1	20	15	2	7	—	—	7	—	50	9·7	1	9	—	1	1	—	1	—	—	13	2·1	169	27·1	176
St. George-in-the-East	48,560	—	4	1	—	5	—	—	4	—	14	3·8	—	6	—	—	—	—	1	—	1	8	2·1	119	31·9	250
Limehouse	56,807	2	13	12	—	11	—	—	2	—	40	8·9	—	—	—	2	2	—	3	—	1	8	1·8	157	34·8	246
Mile End Old Town	113,161	—	17	26	—	14	—	—	9	—	76	8·8	—	4	1	6	4	—	—	—	—	15	1·7	233	26·8	130
Poplar	170,606	—	32	34	—	32	—	2	19	—	119	9·1	—	9	1	6	15	—	6	—	2	39	3·0	388	30·4	194
South Districts.																										
St. Saviour Southwark	24,207	—	5	8	—	—	—	—	2	—	15	8·1	—	2	—	1	—	—	—	—	2	3	1·6	53	28·5	148
St. George Southwark	60,536	—	12	26	—	4	—	—	4	—	46	9·9	—	4	1	4	1	—	—	—	2	12	2·6	161	34·7	176
Newington	124,166	—	27	53	—	18	—	1	15	—	112	11·8	—	11	3	5	—	—	5	—	4	28	2·9	329	34·5	213
St. Olave Southwark	11,098	—	2	4	—	1	—	—	—	—	7	8·2	—	—	1	2	—	—	1	—	—	4	4·7	34	40·0	267
Bermondsey	85,835	—	19	33	—	4	—	—	6	—	62	9·4	—	3	—	13	—	—	—	—	1	17	2·6	229	34·8	197
Rotherhithe	41,050	—	7	18	—	5	—	—	8	—	38	12·1	—	3	1	10	—	—	2	—	1	17	5·4	100	31·8	265
Lambeth	308,108	—	82	90	—	25	—	1	16	—	214	9·1	—	13	2	12	9	—	7	—	4	47	2·0	650	27·5	202
Battersea	174,996	—	38	20	—	21	—	2	17	—	108	8·0	—	38	2	8	4	—	4	—	1	57	4·2	365	27·0	204
Wandsworth	209,655	—	54	46	—	18	—	1	17	—	136	8·5	—	14	1	4	4	—	5	—	1	29	1·8	359	22·3	226
Camberwell	264,817	—	72	150	—	13	—	1	23	—	259	12·7	—	12	1	28	—	—	2	—	2	45	2·2	500	24·6	131
Greenwich	182,513	—	73	88	—	19	—	—	28	—	176	12·6	—	9	—	10	6	—	1	—	1	27	1·9	339	24·2	168
Lewisham (excluding Penge)	91,027	—	62	30	—	5	—	1	8	—	106	15·2	—	—	2	6	1	—	2	—	1	12	1·7	174	24·9	170
Woolwich	41,542	—	8	4	—	3	—	1	3	—	19	6·0	—	2	—	4	3	—	1	—	3	13	4·1	119	37·3	160
Lee	40,219	—	12	5	—	—	—	—	3	—	20	6·5	—	1	—	—	—	—	—	—	1	2	0·6	64	20·7	222
Plumstead	64,031	—	34	27	—	5	—	—	5	—	71	14·5	—	1	—	4	—	—	—	—	—	5	1·0	103	21·0	73
Port of London	—	—	—	—	—	2	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 26 cases of membranous croup.

† Including deaths from membranous croup.

Limehouse and in Bermondsey, 37·3 in Woolwich, and 40·0 in Westminster and in St. Olave Southwark. During the four weeks of December 744 deaths were referred to the principal zymotic diseases in London; of these, 1 resulted from small-pox, 238 from measles, 47 from scarlet fever, 207 from diphtheria, 115 from whooping-cough, 87 from enteric fever, 49 from diarrhœa, and not one either from typhus or from any ill-defined form of continued fever. These 744 deaths were equal to an annual rate of 2·1 per 1000, against 3·4, 1·8, and 1·9 in the three preceding months. The lowest death-rates from these diseases last month were recorded in Paddington, Kensington, Hampstead, St. Luke, Lee, and Plumstead; and the highest rates in Fulham, Bethnal Green, St. Olave Southwark, Rotherhithe, Battersea, and Woolwich sanitary areas. The fatal case of small-pox belonged to Whitechapel sanitary area. The 238 deaths referred to measles were slightly below the average number in the corresponding periods of the 10 preceding years; this disease was proportionally most fatal in Fulham, St. Martin-in-the-Fields, Whitechapel, St. George-in-the-East, Newington, and Battersea sanitary areas. The 47 fatal cases of scarlet fever showed a marked decline from the corrected average number: the proportional fatality of this disease was highest in Fulham, St. James Westminster, Marylebone, Stoke Newington, Shoreditch, and St. Olave Southwark sanitary areas. The 207 deaths from diphtheria were four below the average number in the corresponding periods of the 10 preceding years; among the various sanitary areas this disease was proportionally most fatal in St. George Southwark, St. Olave Southwark, Bermondsey, Rotherhithe, Camberwell, and Woolwich. The 115 fatal cases of whooping-cough were considerably below the corrected average number; this disease showed the highest proportional fatality in St. George Hanover-square, Hackney, Clerkenwell, Bethnal Green, Poplar, and Woolwich sanitary areas. The 87 deaths from enteric fever were largely in excess of the average number in the corresponding periods of the ten preceding years; this disease showed the highest proportional fatality in Hammersmith, Holborn, Limehouse, Newington, St. Olave Southwark, and Rotherhithe sanitary areas. The 49 fatal cases of diarrhœa were slightly below the average; among the various sanitary areas this disease was proportionately most fatal in St. James Westminster, Strand, St. George Southwark, and Woolwich. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during December was nearly 12 per cent. below the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to births registered, was equal to 187 per 1000. The lowest rates of infant mortality were recorded in Hampstead, St. Luke, City of London, Mile End Old Town, Camberwell, and Plumstead; and the highest rates in Westminster, St. Martin-in-the-Fields, Strand, Clerkenwell, St. Olave Southwark, and Rotherhithe sanitary areas.

Influenza was certified as the primary cause of 342 deaths in London last month, the corrected average number in the corresponding periods of the 10 preceding years being 100. Of these 342 deaths, 193, or more than one-half, were registered during the last week of the month. Among the various sanitary areas the greatest proportional mortality from influenza was registered in Paddington, St. George Hanover-square, Marylebone, Islington, St. Martin-in-the-Fields, and Lee. In addition to the 342 deaths directly attributed to influenza 3334 were referred to diseases of the respiratory organs during the four weeks ending Dec. 30th last, showing an excess of 1412 over the corrected average number.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: H. M. Hart-Smith to the *Europa* for duty on voyage to Malta and afterwards to the *Ramillies;* C. Shepherd to the *Nile;* P. H. Boyden to the *Woodlark;* and J. A. L. Campbell to the *Vernon.*

ROYAL ARMY MEDICAL CORPS.

Captain P. H. Whiston is appointed to the Medical Staff in the Home District. Lieutenant-Colonel J. A. Gormley has left for South Africa. Major J. M. Irwin is posted to the 8th Hussars and Captain R. C. Lewis to M Battery R.H.A., for duty. Captain G. A. T. Bray has joined the Brigade Division Staff (43rd, 86th, and 87th Batteries), R.F.A., for service in South Africa. Lieutenant-Colonel W. W. Kenny has joined at Woolwich.

Major Arthur E. J. Croly is seconded for service on the Staff. Major Henry Martin, from the Seconded List, to be Major, vice A. E. J. Croly, seconded. Major Fausset M. Baker is placed on temporary half-pay on account of ill-health.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel William Harford Glover Phelps having attained the limit of age, is removed from the List of Officers of the Army Medical Reserve. Surgeon-Lieutenant-Colonel G. P. Bate having resigned his commission in the Militia ceases to belong to the Army Medical Reserve of Officers. Surgeon-Major Walter Culver James, Honourable Artillery Company of London, late Army Medical Reserve of Officers, is re-appointed with the rank of Surgeon-Major.

INDIA AND THE INDIAN MEDICAL SERVICES.

Majors to be Lieutenant-Colonels: *Bombay Establishment:* George William Patrick Dennys, John William Unthank Macnamara, Joseph Sykes, and John Francis Tuohy. *Madras Establishment:* James Cort Marsden, Francis Casement Reeves, and John Leopold Poynder. *Bombay Establishment:* Charles Fancourt Willis. The Queen has approved of the retirement from the service of Lieutenant-Colonel Frederick Charles Barker, Bombay Establishment.

VOLUNTEER CORPS.

Artillery: The Tynemouth (Western Division, Royal Garrison Artillery): Surgeon-Lieutenant J. Cromie to be Surgeon-Captain. *Royal Engineers:* 1st Lanarkshire: John Hammond Teacher to be Surgeon-Lieutenant. *Rifle:* 1st Volunteer Battalion the Duke of Cornwall's Light Infantry: Harry Roberts to be Surgeon-Lieutenant. 1st Volunteer Battalion the South Staffordshire Regiment: Surgeon-Lieutenant H. S. Hughes resigns his commission: Thomas Thompson to be Surgeon-Lieutenant. 6th Volunteer Battalion the Gordon Highlanders: Surgeon-Lieutenant A. Grant resigns his commission. 19th Middlesex: John Gallie Fraser to be Surgeon-Lieutenant.

VOLUNTEER INFANTRY BRIGADE.

The Clyde: Surgeon-Lieutenant-Colonel P. F. Robertson, 1st Dumbartonshire Volunteer Rifle Corps, to be Brigade-Surgeon-Lieutenant-Colonel on appointment as Senior Medical Officer to the Brigade.

VOLUNTEER MEDICAL STAFF CORPS.

The London Companies: First Class Staff Sergeant Edmund William Herrington to be Surgeon-Lieutenant.

TRANSVAAL WAR NOTES.

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"THE MURMURS OF MITRAL STENOSIS."

To the Editors of THE LANCET.

SIRS,—It is a matter of pain and grief to me that Dr. Samways of Mentone considers that I have misrepresented his views in my article on Mitral Stenosis in the fifth volume of Professor Allbutt's "System of Medicine." I have no concern with the controversy between Dr. Samways and Dr. E. M. Brockbank. These two excellent observers must fight the battle out, but I have a great concern in the portion of the letter of Dr. Samways to THE LANCET of Jan. 6th, 1900, page 64, which virtually brings against me the serious charge that in my article in Professor Allbutt's "System of Medicine" I am guilty of misrepresentation.

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Limehouse and in Bermondsey, 37·3 in Woolwich, and 40·0 in Westminster and in St. Olave Southwark. During the four weeks of December 744 deaths were referred to the principal zymotic diseases in London; of these, 1 resulted from small-pox, 238 from measles, 47 from scarlet fever, 207 from diphtheria, 115 from whooping-cough, 87 from enteric fever, 49 from diarrhœa, and not one either from typhus or from any ill-defined form of continued fever. These 744 deaths were equal to an annual rate of 2·1 per 1000, against 3·4, 1·8, and 1·9 in the three preceding months. The lowest death-rates from these diseases last month were recorded in Paddington, Kensington, Hampstead, St. Luke, Lee, and Plumstead; and the highest rates in Fulham, Bethnal Green, St. Olave Southwark, Rotherhithe, Battersea, and Woolwich sanitary areas. The fatal case of small-pox belonged to Whitechapel sanitary area. The 238 deaths referred to measles were slightly below the average number in the corresponding periods of the 10 preceding years; this disease was proportionally most fatal in Fulham, St. Martin-in-the-Fields, Whitechapel, St. George-in-the-East, Newington, and Battersea sanitary areas. The 47 fatal cases of scarlet fever showed a marked decline from the corrected average number; the proportional fatality of this disease was highest in Fulham, St. James Westminster, Marylebone, Stoke Newington, Shoreditch, and St. Olave Southwark sanitary areas. The 207 deaths from diphtheria were four below the average number in the corresponding periods of the 10 preceding years; among the various sanitary areas this disease was proportionally most fatal in St. George Southwark, St. Olave Southwark, Bermondsey, Rotherhithe, Camberwell, and Woolwich. The 115 fatal cases of whooping-cough were considerably below the corrected average number; this disease showed the highest proportional fatality in St. George Hanover-square, Hackney, Clerkenwell, Bethnal Green, Poplar, and Woolwich sanitary areas. The 87 deaths from enteric fever were largely in excess of the average number in the corresponding periods of the ten preceding years; this disease showed the highest proportional fatality in Hammersmith, Holborn, Limehouse, Newington, St. Olave Southwark, and Rotherhithe sanitary areas. The 49 fatal cases of diarrhœa were slightly below the average; among the various sanitary areas this disease was proportionately most fatal in St. James Westminster, Strand, St. George Southwark, and Woolwich. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during December was nearly 12 per cent. below the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to births registered, was equal to 187 per 1000. The lowest rates of infant mortality were recorded in Hampstead, St. Luke, City of London, Mile End Old Town, Camberwell, and Plumstead; and the highest rates in Westminster, St. Martin-in-the-Fields, Strand, Clerkenwell, St. Olave Southwark, and Rotherhithe sanitary areas.

Influenza was certified as the primary cause of 342 deaths in London last month, the corrected average number in the corresponding periods of the 10 preceding years being 100. Of these 342 deaths, 193, or more than one-half, were registered during the last week of the month. Among the various sanitary areas the greatest proportional mortality from influenza was registered in Paddington, St. George Hanover-square, Marylebone, Islington, St. Martin-in-the-Fields, and Lee. In addition to the 342 deaths directly attributed to influenza 3334 were referred to diseases of the respiratory organs during the four weeks ending Dec. 30th last, showing an excess of 1412 over the corrected average number.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: H. M. Hart-Smith to the *Europa* for duty on voyage to Malta and afterwards to the *Ramillies*; C. Shepherd to the *Nile*; P. H. Boyden to the *Woodlark*; and J. A. L. Campbell to the *Vernon*.

ROYAL ARMY MEDICAL CORPS.

Captain P. H. Whiston is appointed to the Medical Staff in the Home District. Lieutenant-Colonel J. A. Gormley has left for South Africa. Major J. M. Irwin is posted to the 8th Hussars and Captain R. C. Lewis to M Battery R.H.A., for duty. Captain G. A. T. Bray has joined the Brigade Division Staff (43rd, 86th, and 87th Batteries), R.F.A., for service in South Africa. Lieutenant-Colonel W. W. Kenny has joined at Woolwich.

Major Arthur E. J. Croly is seconded for service on the Staff. Major Henry Martin, from the Seconded List, to be Major, vice A. E. J. Croly, seconded. Major Fausset M. Baker is placed on temporary half-pay on account of ill-health.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel William Harford Glover Phelps having attained the limit of age, is removed from the List of Officers of the Army Medical Reserve. Surgeon-Lieutenant-Colonel G. P. Bate having resigned his commission in the Militia ceases to belong to the Army Medical Reserve of Officers. Surgeon-Major Walter Culver James, Honourable Artillery Company of London, late Army Medical Reserve of Officers, is re-appointed with the rank of Surgeon-Major.

INDIA AND THE INDIAN MEDICAL SERVICES.

Majors to be Lieutenant-Colonels: *Bombay Establishment:* George William Patrick Dennys, John William Unthank Macnamara, Joseph Sykes, and John Francis Tuohy. *Madras Establishment:* James Cort Marsden, Francis Casement Reeves, and John Leopold Poynder. *Bombay Establishment:* Charles Fancourt Willis. The Queen has approved of the retirement from the service of Lieutenant-Colonel Frederick Charles Barker, Bombay Establishment.

VOLUNTEER CORPS.

Artillery: The Tynemouth (Western Division, Royal Garrison Artillery): Surgeon-Lieutenant J. Cromie to be Surgeon-Captain. *Royal Engineers:* 1st Lanarkshire: John Hammond Teacher to be Surgeon-Lieutenant. *Rifle:* 1st Volunteer Battalion the Duke of Cornwall's Light Infantry: Harry Roberts to be Surgeon-Lieutenant. 1st Volunteer Battalion the South Staffordshire Regiment: Surgeon-Lieutenant H. S. Hughes resigns his commission: Thomas Thompson to be Surgeon-Lieutenant. 6th Volunteer Battalion the Gordon Highlanders: Surgeon-Lieutenant A. Grant resigns his commission. 19th Middlesex: John Gallie Fraser to be Surgeon-Lieutenant.

VOLUNTEER INFANTRY BRIGADE.

The Clyde: Surgeon-Lieutenant-Colonel P. F. Robertson, 1st Dumbartonshire Volunteer Rifle Corps, to be Brigade-Surgeon-Lieutenant-Colonel on appointment as Senior Medical Officer to the Brigade.

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health. The researches of Potain which had shown that the systole of the auricle overlapped the systole of the ventricle under physiological conditions—a conclusion which overrode our previous knowledge derived from the experimental evidence of Marey and Chauveau—I had previously called attention to.

In the study of the morbid anatomy of mitral stenosis I have found it very noteworthy that in some cases, especially when death has taken place in late childhood or early adolescence, there has been a great contrast in the size and appearance of the two ventricles. The left has been comparatively very small, whilst the right has been greatly hypertrophied and dilated. I have again and again in my clinical teaching shown the value of the recognition of this circumstance for the diagnosis of mitral stenosis. When there is little or no evidence of hypertrophy and dilatation of the *left* ventricle, but a consensus of physical signs showing disproportionate enlargement and abnormal force of the *right* ventricle, the existence of the condition of mitral stenosis is in high degree probable. The form of the obstructive lesion most frequently observed in these cases is that known as the "funnel mitral," though the "button-hole" transformation has been noted. It is a general consensus amongst observers that mitral stenosis is not a congenital malformation, but the result of a very slow and gradual morbid change. Seeing that the disease in the early stages, when the obstruction is comparatively slight, must involve the auriculo-ventricular aperture, it seems almost impossible that there should not be regurgitation. But if there had been regurgitation there would in all probability have ensued dilatation of the cavity of the ventricle, for mitral regurgitation in any notable degree is followed by enlargement of the ventricular cavity. As this cavity is observed to be small it is a fair inference that regurgitation has been prevented by some change making for compensation. An increased power of the normal muscle of the auricle, acting in the way which I understood Dr. Samways to suggest, would as I thought adequately explain the absence of dilatation of the left ventricle. Dr. Samways seems from the evidence of his letter in your columns to have a special objection to my use of the term "abnormally." He says "there is nothing 'abnormal' about the fact that the auricle under certain conditions of size should be able to exert a greater pressure on its contents than the ventricle can." He then enters into questions of physics, which, however germane to the question of the action of the auricle under physiological conditions, do not apply to its adaptation to conditions of disease. I suppose even Dr. Samways will admit that mitral stenosis is an abnormal state. The compensation which is maintained for weeks and months and years in this morbid condition is not effected without a disturbance of the normal conditions. The extra force necessary for the sufficient extrusion of blood through the narrowed mitral orifice must be afforded by some increase of power in the expulsive machinery behind the obstruction. Dr. Samways himself stated that this power came in the majority of cases because of the (abnormal?) increase of the muscle of the auricle or of the (abnormal?) protraction of its contraction. I have nothing further to say except to express the hope that those who have devoted much labour and much thought to the elucidation of the problems of mitral stenosis will not join with Dr. Samways in accusing me of misrepresentation. I think I have a right to complain in strong terms of protest of the language which he has employed against me.

I am, Sirs, yours faithfully,

A. ERNEST SANSOM, M.D., F.R.C.P. Lond.

London, Jan. 10th, 1900.

To the Editors of THE LANCET.

SIRS,—I am sorry to have misrepresented in my book on "The Murmurs of Mitral Disease" Dr. Samways' views on the power of the left auricle in mitral stenosis to prevent the regurgitation of blood after ventricular systole has commenced, by stating that in his theory the auricle contracts with abnormal force. After studying his theory I quoted Dr. Sansom's *résumé* of it, thinking that this put it impartially and concisely. If the auricle has only its normal force with which to overcome the action of the ventricle Dr. Samways' theory seems still less convincing. I also quoted Dr. Woods, who worked at the same subject from a similar point of view, as saying that he thought Dr. Samways' conclusions were absurd. The latter observer objects to this quotation as well, as being hard both on Dr. Woods and himself. He states in his letter to you that Dr. Woods considered his theory absurd because "there are no valves between the auricle and pulmonary veins, and he presumed that if the intra-auricular pressure tended to considerably increase, the leak towards those veins would prevent the rise of blood-pressure in the auricle which otherwise for physical and mathematical reasons must be produced." This objection is invalid, Dr. Samways urges, because there practically are valves in such a situation. Dr. Woods certainly gave this as his second reason for disputing the theory in question, but he also gave a third, and what seemed to be an important reason, which Dr. Samways does not refer to: "The mean radius of curvature of the contracted auricle is nothing like small enough to enable it to raise the pressure of its contents to anything approaching that of the ventricle when the relative thicknesses of the walls are taken into account." Whilst wishing to be perfectly fair to these gentlemen, whose opinions I respect even if I do not altogether agree with them, I am unable to see how I have been hard on them in my reference to their work.

Dr. Samways likens his views of the relative power of a contracting left auricle and ventricle in mitral stenosis to that of the two pistons of a Bramah press and asks, "Is it abnormal that the smaller piston of a Bramah press should be able to force up the larger?" To this question as put the obvious answer is: Yes, it is impossible for the smaller piston to force up the larger unless it be plunged with sufficient force to overcome the resistance of the larger piston. So in the same way it is impossible for an auricle to hold up the ventricle and prevent the regurgitation of blood, which I believe creates a crescendo murmur, unless the auricle contract with sufficient force to do this. That an auricle possesses such power at any time, especially in mitral stenosis when it is so often abnormally thin, has not been proved, nor is it probable that it does possess such power.

My theory of the causation of a crescendo murmur in mitral stenosis requires, as Dr. Samways says, that the jaws of the diseased valve should be stiff and close more slowly than in health. But it does not follow that the murmur should always be present when the valves are stiff, for I explain how the valves may be too rigid, especially towards the end of a case of mitral stenosis, for the failing ventricular contractions to close them at all, and how an ordinary systolic murmur of regurgitation is then heard (p. 16). And I also explain how a crescendo murmur may alternate with a systolic murmur in consecutive beats of a heart owing to the varying force of ventricular systole being able at one beat to close the rigid valve and at another feebler beat unable to do so. And although I believe that the stiffened mitral valve is a prime cause in the development of a crescendo murmur in mitral stenosis, I show how such a murmur may arise with a dilated valve when its curtains are of normal structure and mobility. As I go fully into these points in my book I will not take up your valuable space by repeating my arguments here, but respectfully refer Dr. Samways to them as being the best I am able to give in support of my theory that a crescendo murmur, whether it occurs at the mitral or aortic valve, in stenosis or dilatation, is always regurgitant in rhythm and caused by blood rushing through the valve which is abnormally late in closing.

I am, Sirs, yours faithfully,

Manchester, Jan. 13th, 1900. E. M. BROCKBANK.

To the Editors of THE LANCET.

SIRS,—Dr. Brockbank has argued ably in support of the theory that the characteristic murmur of mitral stenosis is systolic in time, and it does not seem to me that the reasoning of Dr. Samways lends very strong support to the more generally accepted view. One case which I have seen, however, appears to prove that a murmur possessing the main features of the so-called presystolic murmur may occur before the systole of the auricle. Over a strongly beating but intermittent heart a loud presystolic murmur of sharply undulating, almost rattling, character was audible. When the intermission took place the murmur occurred in the early part of the pause and there was silence before the first sound of the next cardiac systole. In this case the murmur obviously occurred during the diastole of the ventricle.

Dr. Brockbank makes use of the different areas over which the diastolic and presystolic murmurs are audible to support the systolic theory. Since the presystolic murmur is best heard where the mitral systolic murmur is also best heard he

suggests with some reason that both the so-called presystolic and systolic murmurs owe their existence to regurgitation through the mitral orifice. It seems to me to be a mistake, however, to consider that the diastolic murmurs are directly connected with stenosis of the mitral valve. They appear to be merely varieties of that dull sound so frequently heard in the diastolic period of the cardiac beat in various morbid conditions of the heart that has been called not inappropriately "the third sound." Until the method of production of this "third sound" is clearly understood it seems to me that reference to the diastolic sounds of mitral stenosis will complicate rather than elucidate the question under discussion.

I am, Sirs, yours faithfully,

Jan. 12th, 1900. THEODORE FISHER.

OPERATIONS FOR ACUTE APPENDICITIS.

To the Editors of THE LANCET.

SIRS,—I am glad to find that so careful and experienced a surgeon as Mr. Keetley, in his letter in your last issue with reference to the points raised by Mr. Moullin and myself, is substantially in accord with me with regard to the nature of the operation that should be performed for most cases of acute appendicitis. With most of what Mr. Keetley says I entirely agree. He evidently recognises that it is not desirable to open the peritoneal cavity and the abscess without regard to the limiting adhesions. This is the essential point which I ventured to urge in my letter in THE LANCET of Dec. 30th, 1899 (p. 1857). Although Mr. Keetley claims that his method of operation may safely be adopted, even on the first day of an attack, he says later that he has no experience of any operation performed within the first 36 hours. He does not tell us at what stage he does usually operate. He objects to a rule of waiting until the fifth day. So should I, and I have carefully refrained from laying down any such hard-and-fast rule, although I do think that the necessity for operation seldom arises before that period. Each case must be judged on its own merits and the operation should, I think, be performed as soon as the surgeon believes that he can reach the abscess without opening the surrounding healthy (and absorbing) peritoneum. Mr. Keetley, with gentle sarcasm, seems to imply that I advocate letting the abscess alone indefinitely, but that is certainly not my practice. The earliest period at which I have been able to open the abscess through the adherent peritoneum has been the third day, but *in most cases* the operation can, I believe, not be performed with safety at this period. I see no objection to opening the non-adherent peritoneum for purposes of gentle exploration, if it be thought necessary. I sometimes do this, but I never open the abscess through the same incision. I confess I do not see wherein the operation that Mr. Keetley recommends differs essentially from that recommended and practised by myself and many other surgeons. Mr. Keetley probably goes a little more deeply into the iliac fossa than I should and probably operates somewhat earlier. When he speaks of carrying his dissection "towards the pelvic brim" he certainly goes further than I should. I should have thought that the manipulation necessary for such a deep dissection would have involved no little risk of rupturing the unopened intraperitoneal abscess (abscesses connected with the appendix are, of course, almost always intraperitoneal). The presence of a mass of inflamed tissues in the iliac fossa would not, in my opinion, render such a deep dissection particularly easy. Mr. Keetley seems to think that his operation is peculiar in that thereby he goes to meet the pus instead of waiting for the pus to come to him. But if he will refer to my previous letter he will see that I speak of opening the adherent *peritoneum*. I do not advocate waiting until the pus has come through the peritoneum. Mr. Keetley does not touch upon the interesting question which cases should be operated upon without regard to the adhesions. That there are such cases no one, I suppose, would deny, although for my own part I believe them to be rare. It is not my intention, however, to raise this question now.

Mr. Keetley expresses his belief that "more cases operated on from the fifth to the tenth day are fatal than any others." But this I venture to think depends entirely upon what operation is done. Fowler's[1] statistics of 49 cases operated upon from the fourth to the seventh day inclusive show 21 deaths; these were all cases of operation without regard to adhesions and would confirm Mr. Keetley in his belief. But the statistics from St. Bartholomew's Hospital, which I quoted in my previous letter, of operations performed in some such manner as that advocated by Mr. Keetley or by myself, tell strongly in the opposite direction. But Mr. Keetley apparently does not believe in statistics. For my own part, I think they may be of much value, provided that they are accurate, that they deal with consecutive cases, and that they embrace a sufficiently large number of such cases.

I am, Sirs, yours faithfully,

Wimpole-street, Jan. 16th, 1900. JAMES BERRY.

[1] Annals of Surgery, 1894, p. 565.

"DEATHS UNDER CHLOROFORM."

To the Editors of THE LANCET.

SIRS,—The letter of Lieutenant Clayton Lane, I.M.S., in THE LANCET of Jan. 13th, p. 132, expresses opinions exactly similar to those which appeared in a letter of mine in THE LANCET of July 1st, 1899, p. 53. Since the publication of that letter various letters have appeared in praise of Krohne and Sesemann's inhaler, none of which have convinced me. Nor has conviction been carried to my mind by the bundle of pamphlets sent me last July by Messrs. Krohne and Sesemann claiming innumerable advantages for their inhaler. In fact, if a medical man believed all the statements in these pamphlets it would be easy for him to convince himself that administration of chloroform by any other method must be very little short of criminal.

I am, Sirs, yours faithfully,

Plymouth, Jan. 14th, 1900. C. HAMILTON WHITEFORD.

"THE CONFERENCE AT NEWCASTLE AND THE MIDWIFERY QUESTION."

To the Editors of THE LANCET.

SIRS,—Your correspondent Mr. Charles E. S. Flemming has been good enough to lay before me in THE LANCET of Jan. 13th, p. 133, some points which have arisen from my letter which appeared in your issue of Jan. 6th, and I thank him. It is only through the bringing up and examination of other aspects of any vexed question that a right and final finding can be crystallised. I have pleasure in answering him by means of the rough sketch of a scheme which I trust will also serve to explain still other points that might crop up.

Scheme for the Working of Medical Practitioner plus Obstetric Nurse in Place of Midwife.

1. Both medical practitioner and obstetric nurse to be responsible according to following arrangement, and also according to further regulations which need not be introduced in this sketch.

2. Patients to pay medical practitioner a fee for visiting of 3*s.* 6*d.* to 7*s.* 6*d.* (subject to carefully fixing under revised scheme). In case of poverty the fee to be paid by parish.

3. Obstetric nurse to attend *virtually* as medical practitioner's assistant at the labour and afterwards.

4. Obstetric nurse to continue in attendance on labour and afterwards unless difficulties or complications arise, when she shall send for medical practitioner (just as midwives are expected to do and as assistant would do). If no complication or difficulty the obstetric nurse reports case to medical practitioner after a certain number of days and he will visit case.

5. Medical practitioner's fee *plus* obstetric nurse's fee should be about equal former midwife's fee *plus* cost of common help usually required in addition. Therefore disbursement of patient about same as under midwife system, for visits of obstetric nurse should render supplementary help of paid woman less needed.

6. Medical practitioner's fee shall be one for every class of case, normal or complicated, the large percentage of normality making it well worth his while, especially as he has his obstetric nurse under supervision and control in scheme, rendering carelessness unlikely.

7. Medical practitioners of districts to be appointed annually; to be advertised for and elected by boards of guardians, or councils, or committees.

8. All patients employing obstetric nurses must consent to visit of appointed medical practitioner at least once. They would be permitted to have consultation after this visit on paying for it in the ordinary way.

The above is only intended as a sketch of fundamental principles, which are only at the moment necessary to consider, and only such details are put in as permit the principles to be advanced or as support them. The following regulations as affecting the obstetric nurse are also merely intended as an indication of principles.

Regulations as affecting Obstetric Nurse.

1. Obstetric nurse shall not penetrate vulva with fingers, except perhaps under rare circumstances indicated in training.

2. Obstetric nurse shall only assist labour by external means, whether by manipulations, or medicines or instruments, or appliances.
3. Aseptic principles, as taught, shall be carried out by obstetric nurse both as regards parts of patient, externally, and parts of obstetric nurse herself (hands, dress, appliances).
4. Obstetric nurse to douche passages of patient only after direction of medical practitioner, with approved appliances or instruments that are subject to medical practitioner's inspection on his visit.

As an answer to the question regarding responsibility urged by your correspondent, he will observe in the above scheme that an obstetric nurse would be subject to such control and disciplinary influence under an appointed medical practitioner as would render her malpractice rare and liable to the penalty of loss of certificate, to say the least. Nor can the point concerning fragment of placenta be properly advanced in the face of the above scheme. Any substitute for a qualified medical practitioner may leave behind a fragment of placenta—much more the ordinary or even registered midwife.—I am, Sirs, yours faithfully,

London, Jan. 13th, 1900. HAYDN BROWN.

"PRESCRIBING ALCOHOL *versus* OUR OWN INTERESTS."

To the Editors of THE LANCET.

SIRS,—I shall be much obliged if you will grant me some space to reply to Dr. Coley's remarks upon my views. In the course of a somewhat stormy controversial career I do not know that I have met with misrepresentations quite so complete as those with which he favours me in THE LANCET of Jan. 13th. He says: "According to him the way to secure sobriety for the human race some thousands of years hence is to let alcohol have its own way for the present and (with the aid of those beneficent eliminators of the unfit, poverty, and starvation, and tuberculosis, and crime) get rid of all who have 'an inborn capacity for delighting in it.'" May I ask Dr. Coley to quote, with due regard to the context, the passage in which I advocated views so atrocious and really so excessively silly? Giving my data, I made two statements of fact which I believe are incontrovertible—at any rate, they are incontroverted. The one that all free and civilised races are now temperate strictly in proportion to the extent they have been weeded out by alcohol; the other that in the future all such races will be temperate in like proportion unless certain measures (which I mentioned) were adopted. Having traced the past of an epidemic I endeavoured to forecast its future and to suggest a remedy. Dr. Coley thinks it right to inform a possibly horrified public that I advocate the spread of the disease. I am irresistibly reminded of the fat boy in "Pickwick" who was desirous of making the flesh creep.

He says, "Some of us may venture to doubt whether Weissmann's facts are sufficient to support his own theory." But, to quote the memorable words addressed by Sairey Gamp to Mrs. Prig, "Who deniges of it, Betsy?" I myself am of the opinion that Weissmann's doctrines are metaphysical nonsense and I cannot imagine why Dr. Coley will persist in attributing to me a belief in them. I hardly dare venture to suggest that he is perhaps belabouring the wrong philosopher; or to believe that this severe and confident critic has confused Galton's theory of the non-transmissibility of acquired characters with the fantastic superstructures for which alone Weissmann is responsible. If this surmise should unhappily prove correct—and really the more I think the more I believe it likely—Dr. Coley will find a deal of information, useful to the scientific critic, in the late Professor Romanes's book "Weissmannism."

May I suggest to him that the doubt he expresses is only an opinion and that mere opinions are not of the slightest value in science? If he will support his opinion with facts and arguments I on my part will cheerfully undertake to deal with them. For reasons I need not enter into this offer is not indicative of very great vanity. He concludes by saying, "But the inverted pyramid of inference which Dr. Reid has tried to balance upon Weissmann's dogma would topple over even if the foundation upon which he has rested it were firm as rock." But I have not tried to balance anything on Weissmann's dogma, whatever it may be. Moreover, my opinions were supported by facts and arguments. If instead of misrepresenting and then contradicting conclusions Dr. Coley will destroy the premises, I—well, I shall be infinitely surprised.

I am, Sirs, yours faithfully,

Southsea, Jan. 15th, 1900. G. ARCHDALL REID.

"DIPHTHERIA AND MILK-SUPPLY: A FILTHY HABIT."

To the Editors of THE LANCET.

SIRS,—I confirm Miss Williams's statement in THE LANCET of Jan. 13th as to the dirty and filthy habit of many milkers in the eastern counties who moisten their hands with saliva before seizing the teats in milking. It is quite possible that thus diphtheria bacilli might be introduced into the milk of a cow. On page 199 of Newman's "Bacteria" the suggestion is given of milk becoming contaminated with tubercle in like manner from a milker whilst suffering from tuberculosis.—I am, Sirs, yours faithfully,

WILLIAM H. HEWLETT, M.D., D.P.H. Aberd.

Wivenhoe, Essex, Jan. 15th, 1900.

"A CASE OF SUPRAPUBIC LITHOTOMY: REMOVAL OF TWO VESICAL CALCULI; RECOVERY."

To the Editors of THE LANCET.

SIRS,—Allow me to congratulate Mr. Vincent Jackson on his successful case of suprapubic lithotomy in a boy of eight years. At the same time I would like to ask why is it that such a case would hardly be remarked had it been treated by either litholapaxy or by lateral lithotomy? I only venture to ask you to permit me to occupy a small amount of your space in writing of this subject, because I have the advantage in forming an opinion of working neither in England nor India. In treating successfully 30 cases of stone at varying ages between two years and 80 years—the calculi weighing from six grains to two ounces—I have employed every method and I heartily support Mr. Jackson in his plea for the right of the surgeon to select his operation. But I fear that Mr. Jackson's remark that "litholapaxy is a very easy operation while lateral lithotomy is not" may mislead. Mr. Reginald Harrison, whose keen clinical instinct always directs his knife and whose pen never wanders from the work that his knife has done, is not in favour of the suprapubic operation in children; and although in our art there is no finality it may yet be true that enough work has been done to show that while litholapaxy is seen at its best in children the suprapubic operation has proved itself of all methods in childhood the most dangerous.

I am, Sirs, yours faithfully,

W. A. MACKAY.

Rio Tinto Hospital, Huelva, Spain, January, 1900.

"THE LESSON OF THE INFLUENZA EPIDEMIC."

To the Editors of THE LANCET.

SIRS,—There is one flaw in the counsels contained in the leading article on the above subject in THE LANCET of Jan. 13th and I fear it is a fatal one. If it be the duty of any person who has been attacked by influenza to seclude himself from contact with his fellows because he is infectious he is naturally entitled to ask to what extent he is to do so and for how long a time. How is his medical attendant to answer this question? If such a question be put in the case of small-pox or scarlet fever or enteric fever, and also, though not with precisely the same degree of certainty, in whooping-cough and measles, the attendant can reply until such or such symptoms or conditions have disappeared. The realisation of this result can, when it occurs, be recognised by the patient himself as well as it can by the medical attendant, except, perhaps, when the criterion of freedom from infection is a bacteriological one, as in the case of diphtheria, and it is upon the possibility of this recognition by the patient that his coöperation and that of his friends can be enlisted in maintaining the isolation which his medical attendant prescribes. But what is the criterion of freedom from infection in a person who has had influenza and to what extent and for how long is isolation to be prescribed? It is obvious that in such a case pure dogma, even if there were any base at all for it, is a dangerous aid on which to rest.

But there is another consideration which, apart from that just referred to, must make any attempt at isolation of influenza patients a counsel of perfection so far as the bulk of the public are concerned—it is the anomaly which the disease exhibits in its attacks. It is a fact with which of

course, the public are themselves familiar, that the disease will attack some members of a family and spare others, all of them being apparently equally liable to it and all of them in frequent contact with one another. A similar eccentricity in the case of the mild form of scarlet fever which has been so generally prevalent of late years creates the same difficulty in persuading the public of the need of isolating those who suffer from it. And it must always be so. Unless the public can recognise for themselves the criteria of infectibility it is not to be expected that they will have much respect for medical advice on the subject, or that medical men will expose themselves to be tripped up by the questions which are sure to be put to them if they counsel isolation.

I am, Sirs, yours faithfully,

Jan. 14th. A MEDICAL OFFICER OF HEALTH.

*** Our correspondent's letter points to certain obvious difficulties in the application of preventive measures to the spread of influenza. But he does not invalidate our contention that only by reasonable attempts at isolation can much good be done. The Clinical Society has reported that the disease may be conveyed by convalescents for 10 days. For this period they should act as persons capable of conveying the disease. There are, of course, cases of doubtful diagnosis, but other cases are typical and the diagnosis in such is unmistakeable. That the infection of influenza is discriminating—that it takes effect on one and not another member of a family—is true. But the same is true of all infections. While we admit that persons affected with influenza convey the disease, we must hold that for them to diffuse the poison they carry unnecessarily is to act improperly.—ED. L.

PUBLIC HEALTH OF DUBLIN:

SCHOOLS IN THE SLUMS.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(Continued from Dec. 30th, 1899, p. 1863.)

As in the present instance children are the principal victims of the prevailing epidemic of measles, the condition of the schools and their surroundings are of especial interest. Taking one of the most central districts some account has been given of the great Roman Catholic school and of the Protestant Children's Home in Townsend-street. With regard to the suburbs I have been shown a letter written by one of the former representatives in the House of Commons of the Irish Nationalist Party. This evidence does not come therefore from a bigoted Irish Protestant or from the "hateful Saxon," but from a patriotic Celt. The letter was written to one of the persons who helped me to collect information, and though not intended for publication is so typical and to the point that I cannot do better than reproduce some of the salient passages. The writer says:—

"I do think it was a very great act of charity to have THE LANCET making an inspection of some of the Dublin premises. He should be told that the sanitary accommodation of the schools would disgrace the interior of Africa. I have been at the Roman Catholic school at ..... (National school), and I can assure you that the grant should be withheld until proper sanitary arrangements were supplied. And this state of affairs prevails where churches are erected in the not remote neighbourhood costing £25,000, besides fabulous sums of money on their keep and the supply of vast palaces for 'holy poverty.' ..... I wish you could impress upon THE LANCET representative the *absolute necessity* that exists for the sanitary inspection of National schools. How are poor people to have a sanitary education if the practical lesson is not shown at school? In fact, why should the magistrates fine for want of cleanliness poor women who have not got the practical lesson when children at school, knowing, as the magistrates must do, that at the present moment the children are left derelict of appliances which distinguish the civilised from the savage peoples? If you only get this matter seen to you will have done the very greatest charity to the helpless poor and will certainly bring you and yours a blessing to all time.

This letter undoubtedly goes to the very root of the matter. What is the use of preaching the gospel of cleanliness, of saying that this and that should be done, if the great mass of the people have during their childhood received no object lessons while at school? It so happens that the majority of schools in Dublin are Roman Catholic schools; therefore, in criticising these schools it may appear as if an attack on the Roman Catholic party was intended. Even before I had time to say anything of a very pointed nature the Irish Roman Catholic press began to protest that it was wrong to ascribe the dirty habits of the Irish people to their religious convictions. Poverty, we were told, was the real cause, and this, of course, supplied a good pretext for political diatribes against the policy of England which had destroyed Irish industries and reduced the population to the verge of starvation. But industries flourish at Belfast; that town is a great centre of wealth and is also a great centre of Protestantism. Yet in the winter of 1897 and 1898 I likewise reported at length on the typhoid fever epidemics then prevailing in that town. Let those who accuse THE LANCET of seeking, under the cover of sanitary reform, to attack the Roman Catholic religion read what was then published about Protestant Belfast. The trouble in Dublin is not so much the organic defects in the system of domestic drainage as the filthy habits of the people; and these habits are due in a great measure to the indifference or the technical incapacity of the teachers of the people. In this case they happen for the most part to be Roman Catholics. This I cannot help; I have nothing to do with their religious views and should doubtless have to make similar criticism in regard to Buddhist or Brahmin teachers if I had to deal with the prevalence of plague in India. There the poverty is even greater than in Ireland, and this is also the case in Turkey. Yet when visiting the cholera-infected districts of Constantinople I had to render homage to the lessons of cleanliness taught by the Mahommedan religion, which insists that the faithful must wash first before they venture to pray. It is not for me in the columns of THE LANCET to discuss whether Mahommedanism is nearer to Divine truth than Christianity; but—and merely as a matter of fact—I must remark that a ritual which insists on ablutions before prayers is more useful to the cause of sanitation than a ritual which involves no such obligation. In the Roman Catholic schools, though the children are taught to sing hymns and to pray, there are often no means provided for them to wash. The Irish may be poor, but if they nevertheless possess money to build big churches and schools they could also buy washing basins and a little soap. Enamelled basins that will not break are so cheap and soap is so cheap that there is no excuse whatever for not purchasing them. Yet the children coming from the schools—especially the industrial schools, where they have been boarders and therefore under the complete control of their teachers—are often covered with vermin and caked with dirt. This gross neglect can, should, and must be altered, and if nobody in Ireland will undertake the work then there ought to be inspectors from Whitehall to see that it is done. Every child on entering school should be examined and if not clean should at once be conducted to a properly appointed lavatory and made to wash. But in many cases such lavatories do not exist; and it is not too much to ask, in the face of the present appalling death-rate, that all school grants should be withheld till such indispensable conveniences are provided and fully utilised.

Having visited two schools near the commercial centre of Dublin I next proceeded to visit two schools near the legal centre, the Law Courts, or the Four Courts as they are called, also selecting in this case both a Protestant and a Roman Catholic school. Little Strand-street leads to the "Sisters of the Faith St. Bride's Catholic Schools." The pavement of this street is very uneven and several of the houses have been abandoned. In one house, however, there were six families occupying five tenements and there was no closet at all on the premises; the inhabitants had to go to the backyard of the house next door. Here there were two water-closets, but the chains had been cut off from the flushing tanks, so that there was no flush except when provided by someone bringing a bucket of water to throw down. This was close to the walls of the school. In the third house from the school the closet, the seat, and the floor and yard were covered with fæcal matter. Here there were many very poor tenants who paid from 1*s.* 8*d.* to 2*s.* 6*d.* rent weekly. The last and nearest house to the school was even more wretched and dirty. There were many old rags hanging out in the yard and some of the window-panes were

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entirely broken away. On the other side of the school there was a large irregular-shaped yard. Piled up against the wall of the school there stood a great manure heap from which dark-brown liquid manure issued and formed stinking pools on the unpaved porous ground. The emanations from the polluted subsoil would be drawn into the school by the greater heat prevailing in the class rooms. In this yard there is also a stable, a fearful closet, and on one side a tenement house where wretched ragged people dwell. This touches the wall of the school. My request to visit the interior of the school was received with much trepidation and hesitation. Though I was accompanied by a municipal officer still it was thought that I must obtain special permission. However, I was able to ascertain that there was no lavatory for the boys and that the principal schoolroom was dark and ill-ventilated. Within some two or three yards of the windows was a high black wall. It had never occurred to the sisters in charge that by whitewashing this wall a better light would be reflected into the school, and that this would be more wholesome and cheaper than burning gas in the daytime. Here, again, was an instance of the absence of technical knowledge. But lest I should be once more accused of attacking Roman Catholics because of their religious convictions, let me say that I had here an opportunity of noting the politeness and courtesy of some of the school-children. Indeed, whatever may be the defects of education in Roman Catholic schools, so far as my personal observation goes I have always found that they succeed better in teaching manners, in inculcating an appreciation of the courtesies that render life so much more pleasant and social intercourse so much more refined, than is the case in regard to Protestant schools.

It is doubtless necessary that schools should be built in populous districts so as to be close to the homes of the children, but this renders the erection of a healthy building very difficult. The amount of ground secured should be sufficient to allow an open space providing a good sweep of air and an ample provision of light all round the building. This is not the case in regard to St. Bride's Catholic Schools. On one side there is the black wall already described; on the other the very poor, narrow, wretched street, buildings on the third side, and the foul yard with the manure heap saturating the school walls on the fourth side. Nor are there any recreation grounds. The children arrive, some at 9 o'clock, but most of them at 10 o'clock, and they leave at 2 o'clock. Therefore, there is no break, no recreation or meal hour. This is too long and yet not long enough. From two to three hours at a time in a class-room is quite sufficient for young children; then there should be a break for a meal or for a healthy romp in the open air, and the pupils could work again for another two hours or so, thus attending their classes for at least five hours a day. To attempt to crowd the whole of the education given into one long sitting is not judicious either from the educational or from the sanitary point of view. This is done doubtless to avoid the difficulty of having to feed the children; but, on the other hand, the greatest advantage would be derived from the establishment on the French model of a *cantine scholaire*, where for a penny or so a wholesome bowl of soup could be provided. Such catering being on wholesale principles would cost much less than the meagre food purchased for them retail by their parents. Considering that the population of Dublin is, in the main, underfed, this question of school meals for the children of the poor is of the utmost importance. As it is, the children are not only ill-fed, but the air that they breathe is, in a measure, deprived of its strengthening qualities by bad ventilation, by the want of the purifying effects of direct sunlight, and by the foul emanations from the surrounding slums. No wonder that so many of these children should be struck down by the prevailing epidemics.

The large court overlooked from one side of the school gives on to a twisting narrow alley. This alley is paved with loose-fitting cobble stones which do not protect the subsoil from contamination. All along the alley there are manure, garbage, and dust heaps. Old shanties in ruinous condition abound on both sides of the alley. There is one very dark place where some poor people are employed to cut wood. Black mud oozes up on all sides and the earth is covered with decomposing organic matter. The other end of the alley abuts on to East Arran-street where there is a street market, and the costermongers get rid of their fish-heads and offal by throwing them into this comparatively unfrequented alley. Thus this refuse gravitates towards the school walls and helps to pollute the air the children have to breathe. Facing the alley that winds round the school, but on the opposite side of East Arran-street, is Water-alley. Here the houses are in a dilapidated condition, the windows for the most part are broken and the framework shattered. In the yards of these houses there are strange wooden shanties built up as rough stables for donkeys and other animals. Outside manure heaps accumulate and portions of the manure are scattered for a considerable distance around. Bare-footed children tread upon all this filth.

In Craig's-building, Charles-street, hard by, I penetrated into one of the houses. There was a twisting, narrow, dark passage with pools of filth on the stair landing. Below there was a very small yard. Here stood a closet under some bedroom windows. The pan was full and overflowing with fæcal matter, the drain was evidently blocked, and the foulest odours entered freely into the house. The other houses near at hand were all filthy and dilapidated. Pill-lane (which had such an awful reputation that its name has been altered to Chancery-street), Greek-street, Beresford-street, and Little Mary's-street all contain many houses unfit for human habitation; indeed, some portion of Greek-street has been condemned and already pulled down, but some of the condemned houses that still remain are inhabited. Here and there the manure from the backyards has been kicked, carried, and blown as far as the street. Yet some of these houses were in former years well tenanted. They have broad staircases and porched doors. The fact that these houses were originally built for single and well-to-do families renders them the more unsuitable for tenement dwellings. A little further on I reached Lurgan-street, where there is a Protestant boys' school close to the barracks. There was a fusty, unpleasant, close smell when I entered this school which suggested insufficient ventilation. There was, however, a large yard behind where the children could play and breathe the outer air. Here at the farthest extremity from the building were trough closets made of tiles so that the boys must stand. This continental system has at least the advantage of being easier to wash out and with careless people it is more safe. There are some 200 children in this school and they likewise suffer from their surroundings. On one side they have the barracks, behind the large yard, and in front the street, but on the other side and very close is an objectionable tenement house. The second next house has been condemned and its inhabitants have left, consequently the neighbours throw their rubbish and refuse into the yard and ruins and there is no one to remove it. One of the closets gives off such foul odours that they reach the school and sometimes necessitate the closing of the school windows on that side. In the yard of the tenement house nearest to the school and within 15 feet of one of the school windows the closet is in a filthy and neglected condition; fæcal matter lies on the floor in front of the seat and other persons have defecated in the hall passage of the house itself. A considerable amount of linen is hung out to dry above this foul dirt. As for the play yard of the school itself, though clean, it is not suitably paved, for it has cobbles instead of asphalt, and there are chemical works at the back of the yard. Thus it will be seen that the surroundings of this Protestant school, like those of the Roman Catholic school, are altogether unfavourable and also tend to contaminate the air the children breathe.

Retracing my steps and going in the direction of Sackville-street I passed by Cambell-court. Here a number of scavengers in the employ of the corporation were sweeping out this court. Nevertheless, in broad daylight at 1 o'clock in the afternoon a man urinated against the wall at the entrance of the court, and this in the presence of the municipal employés. No one protested. The fact is that there are hardly any sanitary conveniences provided in the poor quarters of Dublin, and it will be a long time before the people are taught not to relieve themselves in the streets, courts, and alleys. In Taafe's-court there is a public stand-up tap or fountain. It is surrounded with fæcal matter. People come and empty slop pails into the gully under the water-tap. On the other hand, those who come to fetch water tread in the dirt and are likely to soil the pails or pitchers in which they take the water they are about to drink. The cottages in this court have been condemned and are now uninhabited. Before these people left the court there was very much more filth round the tap, yet what I saw was bad enough. Then I reached a local Petticoat-lane, which is the second-hand clothes market, and in consequence of the insanitary conditions it is doubtless a prolific source

of the spread of disease. In Sampson-lane there is a whole row of what by courtesy are called slaughter-houses, though they are utterly devoid of any sort of suitable arrangement. Cobble pavement prevails, the animals are slaughtered in mere shanties, blood and offal reaches the street, and no measure whatsoever is taken to prevent the contamination of the subsoil. There is a whole row of these slaughter-shanties, and immediately opposite, overlooking them and only separated from all the offal by the narrow street, there is a row of inhabited dwelling-houses. There is also a court facing the slaughter-houses which is full of manure piled under a splendid metal plate put up by the corporation announcing that anyone who deposits refuse on this spot will be prosecuted. At the other end of this lane, which abounds in slaughter-shanties, there are a market and many butchers' shops. At last I reached Sackville-street and I would certainly advise the tourist who is brought to this magnificent thoroughfare and told that Dublin is a fine town to turn aside and wander through the small streets between Sackville-street, the Four Courts, and the barracks at the foot of Constitution-hill. For sordid misery, dilapidation, and dirt it would be difficult to find anything more depressing and degrading.

(To be continued.)

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Gift of a Botanical Laboratory to University College, Liverpool.

MR. W. P. HARTLEY of Aintree has offered the sum of £12,000 to the governors of University College towards the erection of a new botanical laboratory and museum. The College is in great need of a suitable building for botanical purposes, as under present arrangements it is impossible to exhibit adequately the materials collected in the limited space at the disposal of the professor of botany. The botanical laboratories and museum are at present housed in the old building in Ashton-street, and consist of a laboratory capable of accommodating 30 junior students, a smaller advanced laboratory, a professor's room, and two rooms which serve as a museum. The museum contains a teaching series of cryptogams and phanerogams and a large herbarium of British and foreign plants. Mr. Hartley's munificent donation will enable the governors of University College to provide accommodation for the numerous requirements of the botanical department and will also promote the completion of the buildings necessary to form a quadrangle of noble proportions. The chair of botany, which is so worthily occupied by Professor Harvey Gibson, was founded in 1888, principally by the munificence of Dr. Holbrook Gaskell, who contributed the sum of £5000, to which he added a further sum of £1000 in 1894.

The Liverpool Hospitals and the Invalids from the Seat of War.

The committee of the Royal Infirmary at their last meeting, in answer to the appeal of the War Office which has been made to them in common with the managers of other hospitals, resolved, in addition to the 12 beds previously offered, to make arrangements for the reception of 18 more invalided soldiers belonging to the Liverpool district free of all cost to the Government. To enable this to be done without prejudice to those for whom the charity was intended it was determined to convert the large entertainment room into a ward. This course will entail little trouble and expense beyond the increased cost of staff and maintenance due to the larger number to be provided for. The Royal Southern Hospital and the Northern Hospital will also provide some beds for a similar purpose; the latter have offered to provide eight beds at a charge of 2*s.* a day. The Stanley Hospital authorities have decided not to take any steps in the matter until they are in receipt of further information on the subject.

The Warrington Infectious Diseases Hospital.

The Warrington Town Council have passed a resolution decreeing that alterations involving an expenditure of £10,000 should be made in the Warrington Infectious Diseases Hospital.

Influenza in Liverpool.

The medical officer of health reports that the death-rate of the city is exceptionally high, owing apparently to the presence of influenza, although influenza did not appear in the statistics as the actual cause of death, except in a limited number of cases. Dr. Hope points out the valuable work which has been done by the female inspectors in improving the health of poor localities. In the matter of the management of infants very useful hints are given by them to ignorant parents.

The Proposed County Asylum for Inebriates.

A conference between representatives of the Lancashire County Council and the county boroughs will be held at the County Hall, Preston, on Jan. 29th to settle the terms of the Bill which is to be promoted next session for providing a county asylum for inebriates.

The Microbe of "Pink-eye" in Horses.

Dr. H. E. Annett, of the Liverpool School of Tropical Diseases, has been conducting investigations into the prevalence of "pink-eye" in Liverpool horses and has found, he believes, in every case the same bacillus. The disease had been making such serious ravages among horses in Liverpool that the Cart-owners' Association sought the assistance of Professor McFadyean, who has arrived here from London to investigate the disease on the spot. Should the discovery of the microbe prove to be an accomplished fact the Liverpool School of Tropical Diseases is to be congratulated in that it will have been the means of minimising the widespread ravages of this formidable disease among horses throughout the country. Dr. Annett's experiments are to be continued.

Jan. 16th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Housing of the Working Classes.

AT the meeting of the Manchester City Council on Jan. 3rd a report from the Sanitary Committee was adopted which recommended the purchase of 237 acres of land at Higher Blackley to be used for purposes under the Housing of the Working Classes Act and the Allotments Acts. In moving its adoption Alderman Walton Smith, the chairman of the committee, spoke of the work done during the past 14 years in the way of demolishing back-to-back houses and insanitary buildings generally and of the difficulties experienced in finding suitable accommodation for the people who had been displaced. Objection was taken to the purchase, as the distance was four miles from the city, but this was met by the statement that by the time the houses were built and the land laid out there would be railway and tramway facilities, so that working men would be able to get to and from their work without difficulty. There is some difference of opinion as to whether a workman should live near his work or at a distance, and it is satisfactory to know that one member of the council, well known for his acquaintance with the habits of the working classes, said that those who lived away attended their work better than those living near to it in the centre of the town. This recalls the mistake made when the assize courts were built in Strangeways. It was thought that the judges, tired with the day's work in court, would be glad to pass along a corridor into the beautiful house adjoining which had been built for their entertainment. But no; they wanted to get away for a few hours from the scene of their labours and to breathe a fresher air, so that now they make no use of their lodgings in Strangeways. The better sort of working men will be only too glad of a change from the stuffy town, while the boon to their wives and children will be priceless. And in these days we cannot afford to neglect anything that will help to bring up the coming race in health and vigour.

Street Explosion in Manchester.

We are reminded from time to time that all of our nineteenth-century conveniences bring with them their special dangers. Not long ago a high-pressure main gave way in Strangeways, causing a large upheaval of the ground, and some time afterwards a sewer gave way in Oxford-street threatening, as one of the local papers puts it, "a number of innocent passers-by with the fate of Korah, Dathan, and Abiram." Occasional upheavals on a comparatively small scale have occurred in connexion with the electric supply and on Jan. 5th a terrific

report startled the people near the Royal Exchange, the flags in front of the building being lifted for a distance of 20 yards, while, as an eye-witness says, "in a few seconds a sheet of flame at least 20 or 30 feet high sprang from the pavement." It is extraordinary, and as some say "little short of miraculous," that no one was hurt, for these flags are crowded on Friday afternoons. There were, however, some narrow escapes, one gentleman having his hat blown across the road though he felt no shock. There are always satisfactory explanations of the why and the wherefore, but they come a little late. Mr. Wordingham, the city electrical engineer, is said to have explained that "the accident was due to the fact that the old-fashioned rubber cables are liable under certain conditions to portions of the rubber distilling from excessive heat." Another account states that it was caused by defective insulation, "the current finding its way out through a weak spot and instantly converting a considerable length of the indiarubber covering into inflammable vapours which took fire." It shows how progressive and yet how imperfect our practical knowledge is that these cables, laid a comparatively short time since, with the sanction, presumably, of the late Dr. John Hopkinson, who represented the foremost science of the day, should so soon have become "old-fashioned" and discarded and that for some time their removal has been going on. The explosion took place in a comparatively small section that was awaiting removal. Mr. Wordingham is said to have stated that "the new kind of cable was of a material that would render a repetition of these explosions absolutely impossible when the relaying in the city was complete." This is satisfactory so far as it goes, but such predictions are not always fulfilled. As the *Manchester Courier* says, "Nothing would excite more general surprise than the absence of excavations for two days together in any of our main streets" for something connected with the gas pipes, water pipes, sewers, or electric cables.

A Fatal Christmas Feast.

As everyone knows, our national festivals are made the occasions by some of the baser sort for disgusting orgies, though it is comparatively rare for the results of their abuse to be the subject of a coroner's inquest. But on Jan. 2nd Mr. Smelt, the city coroner, held an inquiry concerning the death of a woman from Salford who, with her husband, was spending New Year's Eve with an aunt in Hulme. She had complained of not feeling very well, but after taking some tea and whisky seemed better, and during the evening took some tinned salmon, tinned lobster, bread-and-butter, sweet cake, two glasses of claret, and a bottle of stout. She also sang a song, but had to go to bed, and "soon after midnight, whilst the company were still welcoming the new year with liquor and music, she died." Besides this woman there were ten people in the house all drunk. Mr. Heslop made a post-mortem examination of the body and after his evidence the jury returned a verdict of "Death from syncope arising from heart disease and excessive eating and drinking," while Mr. Smelt characterised the case as one of the most disgraceful that had ever come before him. We hear a great deal that is true about the good qualities and the intelligence of our working classes, but not perhaps quite as much as it is well for us to know of the large leaven that exists of those whose civilisation is little above that of the lowest savages. The problem of their rescue from a condition that does not speak well for the practical results of our educational methods is not one to be entered on here, but it is saddening and disquieting to think that in close proximity to, yet untouched by, the knowledge, the culture, and refinement of the day there are numbers of our people whose moral and intellectual plane is scarcely above that of the "brutes that perish."

Washhouses in Congested Districts.

At the last meeting of the Manchester City Council one of the members asked what had been done with regard to his suggestion made some months ago to the Baths and Washhouses Committee that small washhouses should be provided in the congested districts of the city. The chairman replied that a special sub-committee had been appointed to consider the question and would be called together early in the year. This question is not new. It was brought before the committee years ago. The boon to the poor women living in back streets in crowded houses with scant accommodation for washing themselves and their children would be most valuable. They have not the courage to go to the palatial public baths with their grimy little offspring but would gladly take them to a cottage differing little from those in which they dwell. This matter has often been pressed on the committee, as the chairman well knows. But some of the council are ambitious and wish the baths to be noble buildings "worthy of a great city," as if anything would for long be decorative where smoke is allowed so much of its own sweet way.

Jan. 9th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Hospital Accommodation for Wounded Soldiers in Scotland.

THE Board of Directors of the Crichton Royal Institution, Dumfries, have offered to take in 10 wounded soldiers from South Africa, preferably men suffering from nervous disorders. The managers of Campbeltown and district Cottage Hospital have offered to the War Office the free use of five beds in the hospital for the accommodation of wounded or invalid soldiers. The Red Cross Society in Glasgow has suggested to the Health Committee of the Glasgow Town Council that a portion of the new hospital at Ruchill in the Maryhill district of Glasgow should be offered to the Government for the accommodation of soldiers from the front. The committee forthwith agreed to offer the Government the use of the eastern part of the hospital consisting of eight pavilions where 500 soldiers could be accommodated. It is understood that the Red Cross Society undertake to provide the medical men and nurses. It is expected that the hospital will be ready for use by the end of February or the beginning of March. Two beds have been offered in the Castle Douglas Diamond Jubilee Hospital for the accommodation of wounded soldiers, preference being given to those of the territorial regiment, the King's Own Scottish Borderers.

Typhoid Fever in Ayr.

Six fresh cases of typhoid fever have been notified within the last few days in Ayr, bringing the total number up to 176 on Jan. 16th.

Urban Mortality in Scotland in 1899.

An examination of the monthly returns as to the eight principal towns of Scotland, published by the Registrar-General and the issue of which for last year has just been completed, shows that the total general mortality in the eight towns together was 32,430, which on an estimated aggregate population of 1,587,414 gives a death-rate for 1899 of 20·43 per 1000 living inhabitants. Of the total 32,430 deaths, 15,828 occurred in Glasgow (the largest of the eight towns), 5859 in Edinburgh, 3189 in Dundee, 2719 in Aberdeen, 1410 in Leith, 1509 in Paisley, 1321 in Greenock, and 595 in Perth. This brings out the respective death-rates in the towns individually as follows:—Glasgow, 20·16 per 1000; Edinburgh, 19·60; Dundee, 19·20; Aberdeen, 19·06; Leith, 18·22; Paisley, 19·49; Greenock, 21·70; and Perth, 19·37. Of the whole 32,430 deaths 12,111, or 37·34 per cent., were of children under five years of age. In Perth 24·37 per cent. of the persons who died were under five years of age, in Edinburgh 32·19, in Paisley 35·39, in Aberdeen 36·81, in Dundee 37·91, in Glasgow 39·15, in Greenock 41·33, and in Leith 42·13. Miasmatic diseases caused 3062 deaths in the eight towns collectively, or 9·4 per cent. of the whole number. In January, measles and whooping-cough were prevalent in Aberdeen, Edinburgh, and Leith. In February, whooping-cough prevailed in the same three towns, measles in Aberdeen, and influenza in Edinburgh. In March, influenza was marked in Edinburgh and Aberdeen, whooping-cough in Edinburgh and Leith, and measles in Aberdeen. In April measles still prevailed in Aberdeen and whooping-cough in Leith. In May and June whooping-cough continued to prevail in Leith and measles was marked in July. Measles also prevailed in Glasgow in June, July, and August. In September fever prevailed in Paisley. There was an abnormal mortality from measles in October in Glasgow, Leith, and Greenock. The same was the case in Greenock and Perth in November, in which month also whooping-cough prevailed in Perth. In December the average rate of mortality from miasmatic diseases was exceeded in Paisley owing to the prevalence of measles and whooping-cough, in Greenock because of measles, and in Perth because of measles, scarlet fever, and whooping-cough. The deaths

for the year for the eight towns collectively from inflammatory affections of the respiratory organs (not including pulmonary phthisis and whooping-cough) amounted to 6267 or 19·3 per cent. of the whole. Those from pulmonary phthisis alone numbered 3033, or 9·4 per cent. The mean temperature for the year was 47·8° F. and the mean rainfall 36·99 inches. During the year the death was recorded of a widow aged **101** years. Some particulars are also given as to 44 selected smaller town districts with a united population of 721,801. In these collectively the general mortality amounted to 13·090, or 18·13 per 1000 inhabitants. 3835 of the deaths took place in the first quarter.

Aberdeen University Court.

At a meeting of this body held last week it was agreed that the classes in Latin under graduation class standard should be discontinued. The annual accounts of the University were submitted by Professor **Hay**, who said that the young and growing Faculty of Science and the University library were inadequately provided for. Otherwise the surplus, past and expected, was fairly good and the prospects, including those of the completion of the building extension scheme, were not unsatisfactory. An endeavour is being made to arrange the difficulty as to the site for the new Greyfriars Church in connexion with the extension of the University buildings.

Jan. 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Health of Dublin.

THE health of Dublin shows no improvement; last week again 110 deaths from respiratory diseases were registered.

It has been officially announced that His Excellency the Lord Lieutenant has been in communication with the Local Government Board of Ireland on the steps which should be taken for dealing as promptly as possible with the present unhealthy condition of Dublin. The matter is forming the subject of a joint inquiry by the inspectors of the Local Government Board and the chief public health officer of the Corporation. A letter dated Jan. 13th was addressed by the Local Government Board to the superintendent medical officer of health of the city, suggesting various sanitary precautions, conveying a warning to the public in reference to the highly infectious nature of the influenza now prevailing, and promising the approval of the Board for any temporary addition which the Public Health Committee might think it necessary to make to their staff of sanitary sub-officers and dairy inspectors. A letter has appeared in the morning papers from Sir Charles Cameron informing the public that although influenza is not notifiable under the provisions of the Infectious Diseases Notification Act it is highly contagious and persons suffering from it should be carefully isolated. To judge by the leading articles and letters which now appear daily in the journals both the public and the authorities are at last becoming alive to the appalling state of things as regards the death-rate which now exists in Dublin.

Mater Misericordiæ Hospital, Dublin.

The authorities of the Mater Misericordiæ Hospital have guaranteed that at least 30 beds shall be available there for wounded patients who may return to Dublin from our armies in South Africa. The hospital is the largest in Ireland and is dependent altogether on the donations and bequests of Irish people—receiving no Government grants whatever.

The Irish Hospital for South Africa.

In addition to Sir William Thomson and Mr. George Stoker, Dr. J. B Coleman of Dublin has been appointed to the staff of Lord Iveagh's Irish hospital for South Africa Dr. Coleman, who is a physician to the Richmond Hospital, was formerly a house surgeon at the Mater Misericordiæ Hospital.

Death of Dr. S. R. Mason of Dublin.

Dr. S. R. Mason of Merrion-square, Dublin, died rather suddenly on the morning of Jan. 9th. His health was known to be bad for the last few years, but his immediate death was not at all anticipated. He was an M.D. of the Dublin University, a Fellow of the Royal College of Surgeons in Ireland, and formerly a Master of the Coombe Hospital. He filled the chair of Midwifery at the Royal College of Surgeons in Ireland for some years. His death at the early age of 43 years has been a cause of much regret to his many friends.

Coleraine Cottage Hospital.

At the annual meeting of the supporters of this charity, held on Jan. 9th, it was reported that the receipts for the past year were £553 16*s.* 3*d.*, and the expenditure £362 18*s.* 4*d.* The building, which was closed from April until December for enlargement and improvement, was re-opened rent free, and the re-furnishing will soon be complete. 19 patients were admitted and there were 35 extern cases.

Death of Dr. R. L. Hunter of Larne.

I regret to announce the death, at his residence, Larne, co. Antrim, of Dr. R. L. Hunter, on Jan. 12th, at the age of 68 years. Educated at the Belfast Queen's College, he graduated M.D. of the Queen's University in 1868. After acting as an assistant in England he was engaged as a surgeon during the Franco-Prussian War. He escaped from Metz during the great siege of that place and went to America, whence he returned to his native district and for the last 30 years has practised in Larne. At different times he was Admiralty surgeon, police surgeon, and attendant to the coastguards and naval reserve. His health had been gradually failing for the past 12 months. He had an extensive practice and enjoyed the respect of a large circle of friends.

Ulster Medical Society.

The usual monthly meeting was held on Jan. 10th at the Museum, Belfast, but owing to the great epidemic of illness there was not as large an attendance as usual. Professor W. H. Thompson read a paper on Protamines and their Cleavage Products and Physiological Effects; and Dr. Kirk brought forward a communication on Fractures of the Neck of the Radius.

The Influenza Epidemic.

The epidemic of influenza is still raging all over the North of Ireland, increasing the death-rate, causing great inconvenience in business, and giving medical men an immense amount of work.

Death of Dr. Stephen O'Sullivan, Professor of Surgery in the Queen's College, Cork.

Cork has been visited by a very severe epidemic of influenza. During the week ending Dec. 23rd, 1899, the mortality rose to over 50 per 1000. The resources of undertakers and of officials of cemeteries have been taxed to the utmost The local members of the medical profession have supplied their quota to the sufferers. Already something like 25 per cent. of medical practitioners have been prostrated by the disease, whilst the others have been kept rushing from patient to patient. Professor O'Sullivan was confined to his house for about three weeks, suffering from a severe attack and, believing himself to be then sufficiently recovered, he resumed the practice of his profession. For many years he had been suffering from asthma and chronic bronchitis and the attack of influenza had so undermined his constitution that a relapse soon resulted in pneumonia which proved fatal in a few days. The news of his death, which occurred on Jan. 8th, was heard with great regret, not alone by members of the profession, but also by the citizens at large. He obtained the degree of M.D. at the Queen's University in 1862 and soon afterwards was appointed house surgeon at the North Infirmary, a position which he held for eight years. On resigning that post the governors of the hospital, in recognition of his services, elected him assistant surgeon and soon afterwards he became intern surgeon, an appointment which he held with much credit to himself and much advantage to the institution up to the time of his death. He loved the North Infirmary as if it were his own private property and did much for its advancement in public esteem. In the year 1880 he was appointed Professor of Surgery at the Queen's College, Cork, in succession to Dr. Tanner and for some time was a member of the Council of the College. He also represented Convocation on the Senate of the Royal University for a number of years. He was consulting surgeon to the Mercy Hospital, was connected with several public institutions in Cork, and he enjoyed a large consulting practice. Professor O'Sullivan took an intense interest in the "battle of the clubs" at Cork and night after night he attended meetings of the profession despite his failing

health. His mature judgment was always at the disposal of his brethren. He was a man of strong views and even when they did not correspond with those of his colleagues all admired his tenacity of purpose and his sincere desire to advance the interests of the profession. His funeral was almost a public one.

Jan. 16th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

United Resignation of the Medical Staff of a Municipal Dispensary.

IN the Ward of Ternes at Paris there is a dispensary organised by the Municipal Council and connected with the School Board of the city (Caisse des Ecoles de la Ville). At this dispensary there attend a certain number of medical men who give their services gratuitously to poor children. Each one deals with his own specialty and receives no remuneration. The mayor of the Quarter and his deputies have, however, sought to pervert this philanthropic work, which does a great service to the poor, from its proper end to that of a political and electoral engine. The authorities of the Caisse des Écoles have practically decided that children who go to any school other than the municipal schools shall be no longer allowed to receive gratuitous medical advice. This law obviously excludes all those little sufferers whose parents like to send them to schools presided over by religious orders or private teachers. Owing to this regulation, so contrary to the philanthropic feeling which prompted the 14 medical men on the staff of the dispensary to give their services gratuitously, the said staff has resigned in a body. It is necessary to insist once more upon the "cheek" (*sans-gêne*) with which public bodies in France treat the medical profession in its relations to the State, the municipalities, or the law courts. Everywhere the medical profession is treated as an underling whose duty is simply to obey the most arbitrary orders. When any salary is given it is fixed upon an absurdly low scale and for this is demanded cruelly hard work for very long hours and accompanied by heavy responsibility. When services are given gratuitously the requirements of the authorities are quite despotic and are accompanied by a complete lack of consideration. Before this last occurrence there had already been a series of petty annoyances at the Ternes Dispensary. The chief medical man sent in his resignation, whereupon a successor was appointed solely by the governors (*administrateurs*) without any reference to the opinions of the other medical men. The dispensary nurse, whose work was admirable, was threatened by the governors, anxious to manifest their political zeal, with dismissal if she sent her child to any school other than a municipal one. It must, however, be sorrowfully confessed that what renders it easy for a municipality to treat medical men in the way that they do is, as the municipality somewhat insolently answers, the fact that the number of applicants for official places exceeds the number of posts, so that no difficulty is found in filling up the vacancies caused by resignations even of unpaid posts, so great is the liking among French medical men to be an official.

Jubilee of the Society of Biology.

The Society of Biology has been celebrating with an official ceremony the fiftieth anniversary of its foundation. The Government delegates and the members of the society first assembled at the College of France where a marble tablet has been placed on the wall of the laboratory of Claude Bernard, the founder of the society. The tablet bears this inscription: "In this laboratory there worked, from 1847 to 1878, Claude Bernard, Professor of Medicine at the College of France." Orations in praise of Bernard were delivered by M. Gaston Paris, the Director of the College of France, and by Dr. d'Arsonval, who to-day occupies the chair held by the great physiologist. A grand ceremony then took place in the large Theatre of the Sorbonne where the Minister of Public Instruction was received by the officials of the society, with Professor Bouchard, the President, at their head. There were many delegates present from French and foreign societies, and among the latter were Waller of London, Blumenthal of Berlin, Héger of Brussels, and Prévost of Geneva. Speeches were made by Professor Bouchard, by the Minister of Public Instruction, and by some of the delegates. Various decorations were distributed and in the evening a banquet with more speeches concluded the festival.

Complaint against a House Surgeon.

The lay press has been making a great to-do over an alleged scandal at the Children's Hospital. A little girl is said to have died owing to the brutal treatment of a house surgeon while putting on a Sayre's jacket. A complaint has accordingly been lodged with the Tribunal, who have ordered an inquiry into the circumstances and a post-mortem examination. What really happened was as follows. The child suffered from angular spinal curvature. She was very irritable and struggled when anyone touched her. The house surgeon was ordered to put on a plastic jacket but the child tore away the bandages as they were being put on and pinched the house surgeon's arm as hard as she could. He lost patience with her and gave her a light tap on the cheek to make her keep quiet. After that she was good and the jacket was applied without any more trouble. In the evening the house surgeon, to console the child, went to see her as she lay in bed and brought her some little delicacy to eat. As ill-luck would have it, however, just at that moment the child gave one cry and died—an unfortunate event which does sometimes happen after a plaster jacket, although the occurrence is very rare. The house surgeon will certainly not be prosecuted, for all the other patients in the wards are ready to bear witness to his uniformly kind treatment of the patients and to the fact that he never ill-treated the child. But this unfortunate incident, which has been grossly misrepresented by that section of the press which is always in search of sensational copy, serves as a pretext for heaping new insults upon the medical profession.

Madness on the Stage.

One of the Paris theatres has just produced a piece in six acts under the title "In Peace." The plot deals with a matter which has for some time sadly exercised both writers and legislators; one moreover which bears directly upon the rôle of the medical man in modern society. A commercial man returning home from a long journey finds his business ruined by his son-in-law and his children to whom he had confided his affairs during his absence. Naturally annoyed at this he announces his intention of disinheriting them, so they arrange with a medical man to treat him as a lunatic and have him immured in an asylum. Four long scenes pass in the asylum and naturally enough the author makes out that many of the inmates are not mad but only there on account of family intrigues. Among them is a noble-minded priest who has recognised the impossibility of escape and has resigned himself to end his days there "in peace"—a peace which foreshadows that of the grave. The hero of the piece when he comprehends the situation falls into paroxysms of rage which naturally strengthens the opinion that he is mad. One day at the instance of some of his relations, who are disinterested, a magistrate and a medico-legal expert arrived at the asylum to make inquiries of the patient himself. But the influence of his surroundings has proved too much for his brain and he has become really mad, so that he flies at the magistrate and tries to strangle him. Henceforward he is an outcast from society and condemned to die in the prison-house. The medical man in charge of the asylum is depicted as an unscrupulous scoundrel who sticks at nothing as long as it pays him, and the attendants by his orders give morphia secretly to morphino-maniacs in order to prolong their stay in the asylum. The play has not taken the public fancy, for its real dramatic interest is *nil*, but the production has served as a peg for discussions in the press as to the exaggerated powers of medical men in such positions and to demand the carrying out of the oft-mooted, but never realised, reform of French lunacy laws.

Jan. 16th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Death of Professor Francesco Orsi.

BUSY as death has been in the ranks of the profession at home and abroad, it has laid a peculiarly heavy hand on the Lombard medical school. In Professor Giovanni Zoia it

lately lost an anatomist of a high order and on New Year's Day, its illustrious professor of clinical medicine, Dr. Francesco Orsi, succumbed to a lingering illness. Born in 1828, he was still a student in medicine when the revolution of 1848 summoned the youth of the Alta Italia to take the field against Austria, and Orsi was among the first to enrol himself in the battalion of Lombard undergraduates. He was actively engaged in the whole campaign which, in April, 1849, closed on the field of Novara with Radetsky's decisive victory over King Carlo Alberto, and the conclusion of peace saw him once more immersed in clinical study at Pavia. In 1855 cholera was raging throughout Italy, and Orsi, still an undergraduate, repaired to the scene of its greatest prevalence, Nave, in the province of Brescia. There his fearlessness, his professional skill, and his energy did much to lighten the visitation, after which he graduated with high honours as Doctor of Medicine at Pavia. In 1859 war again broke out between Austria and Piedmont, which was this time reinforced by the Emperor Napoleon, and Orsi applied for a post on the army medical staff. His application was granted on the very day of the announcement of the Treaty of Villafranca which prematurely closed the campaign; and so indignant was he at this unexpected turn of affairs that he threw up his appointment and restricted his service to assisting Professor Porta in attending the wounded in hospital. Called to the University of Genoa to fill the chair of Clinical Medicine he did much to enhance the fame of the Ligurian school till 1866, when his Alma Mater, Pavia, secured him for her chair of Medical Pathology and Clinical Medicine. His ability in diagnosis and treatment soon gave the Lombard University a distinguished name, while his expository power, remarkable for its lucidity, succinctness, and impressiveness, brought him pupils from all parts of the kingdom. Among these may be mentioned Pietro Grocco, now head of the Tuscan school; Camillo Bozzolo, professor of clinical medicine at Turin; Achille De Giovanni, Rector Magnificus of Padua, where he is also professor of clinical medicine; and Carlo Furlanini, who holds the chair of Special Pathology in Pavia. Besides being a busy teacher and consultant he was an energetic and philanthropic citizen and filled more than one civic post in his native province with popularity and success. No less proficient in written than in spoken discourse, he published numerous treatises on difficult or debated subjects in medicine, specially valuable being his "Analisi Critica sulla Dottrina dell' Erpetismo," his monograph "Sulle Malattie del Sangue," his "Frammenti di Patologia e Terapia Generale," and his "Curiosità Chimiche." His funeral, which took place at Pavia on Jan. 3rd, was inkeeping with his fame as a teacher and clinician—the "founder," in fact, of the Lombard Medical School, as he was called. The whole Senatus Academicus and the undergraduates of all the faculties, bearing the university banner draped in black, were present, as well as many former pupils holding chairs in other medical schools. Of these Professor Grocco of Florence was the spokesman of the occasion and delivered a touching discourse on the genius and virtues of the deceased. Dr. Achille Monti, professor of pathology at Pavia, followed worthily as representing the Minister of Public Instruction, Dr. Baccelli; while the syndic in a few effective periods expressed on the part of the citizens of Pavia their sense of the loss they had sustained. The ceremony concluded with the announcement of telegrams of sympathy and condolence from all parts of the Italian kingdom.

The Vatican Consultants in Medicine and Surgery.

Leo XIII. has seen and highly approved the gold medal just conferred on his chief consultants in medicine and surgery by the Roman Catholics of Novi (Liguria). The medal, of massive gold, a *chef d'œuvre* of the well-known artist in that *métier* Signor P. Ferrea, presents on its obverse aspect the portraits of these distinguished functionaries, each portrait having under it the name of its subject—Joseph Lapponi and Caietanus Mazzoni. On the reverse side is given the following epigraph from the pen of an accomplished Lombard prelate:—

QUOD
E PRAESENTI DISCRIMINE
LEONEM XIII. PONT. MAX.
NONAGENARIUM
CHIRURGIA ERIPUERINT
NOVENSES ALIQUOT CIVES
HONORIS CAUSA
MDCCCIC.

(Because they rescued from immediate danger by surgical intervention the Supreme Pontiff Leo XIII. in his ninetieth year some citizens of Novi have bestowed on them this medal to render them honour, 1899.) The medal gives artistic expression to the gratitude felt throughout the Roman Catholic world on the Kalends of March last when it learned that the Holy Father had emerged from his consultants' hands stronger and better than he had been for years and when within 24 hours 10,000 telegrams in that sense reached the Vatican and some 350 the private residences of Dr. Lapponi and Dr. Mazzoni. That Leo XIII. maintains his health and his energies, physical and mental, in the severest winter known in Italy for a whole generation is testimony sufficient as to the skill and care with which his consultants acquit themselves. As I write I am informed of another token of gratitude for the successful operation above referred to. This time it is conferred on Dr. Mazzoni singly by the three nephews of Leo XIII. It is a magnificent parchment, designed and illuminated by Perazzoli of Rome, and bears the following dedication: "Ludovico, Camillo, and Riccardo Pecci, gratefully honouring the distinguished master of the healing art, who in March, 1899, with skilled and assured hand, restored health and vigour to the Pontiff and peace of mind to his distressed family and to the anxious Catholic world—an arduous and splendid example of operative science which history will not fail to commemorate." The marginal ornamentation contains allegorical figures and cherubs in illustration of medicine, with various Latin mottos artistically introduced; while the armorial bearings of the Pecci and Mazzoni families sustain each other in the central space of the parchment. In the Vatican itself no fewer than three high functionaries are also under medical treatment. Of these the Cardinal Vicar (Jacobini) is somewhat better; Prince Altieri, commandant of the Pontifical Guard, is dangerously ill; while Cardinal Trombetta (in his eighty-fourth year and not expected to recover) has received from the hands of his Holiness the apostolic benediction.

Award of the Bressa Prize.

Every four years the Reale Accademia delle Scienze of Turin awards the prize of 9600 francs to the contemporary *savant* who in its judgment has deserved best of physical science or nature study during the quadriennium. Since its foundation by Signor Bressa, a distinguished ornament of the subalpine seat of learning, 11 such prizes have been awarded. This, the eleventh of the series, has just fallen to Dr. Ernst Haeckel, Professor of Zoology in the University of Jena, for "valuable contributions covering the whole field of biological science."

Jan. 14th.

Obituary.

THOMAS GREAVES WALKER, M.R.C.S. ENG., L.S.A.

MR. THOMAS GREAVES WALKER died at his residence, Colston's-parade, Bristol, on Jan. 8th from pneumonia, after a short illness. Mr. Walker was educated at the London Hospital and qualified as L.S.A. and M.R.C.S. Eng. in 1885 and 1889 respectively. The deceased, who was only 39 years of age, had been in practice in Bristol for 10 years. He was extremely popular not only with his patients but also amongst the members of the medical profession. Mr. Walker was medical adviser to the local branch of the Society for the Prevention of Cruelty to Children and took great interest in the work. Much sympathy is felt in Bristol for his widow and children.

AMBULANCE WORK IN THE FIELD.—Surgeon-General G. J. H. Evatt, principal medical officer of the Western District, gave an interesting lecture at the headquarters of the local volunteers in Plymouth on Jan. 10th, the subject being "The Organisation and Working of the Army Medical Service in the Field." Surgeon-General Evatt alluded to the fact that in the Western District, stretching from Land's End to Gloucester, there were only two army surgeons left—himself and another. Civilian surgeons were coming forward to assist and a militia medical corps was being organised to take the place of the regulars who were going abroad.

Medical News.

UNIVERSITY OF OXFORD.—The following candidates at the recent examinations were successful:—

FINAL EXAMINATION FOR THE M.B. DEGREE.

Pass List.—A. C. Goodwin, B.A., Keble; F. P. T. Hilliard, B.A., Magdalen; F. O. Stoehr, B.A., Trinity; and J. A. Willett, B.A., University.

Pathology alone.—E. D. Bond, B.A., Keble; J. D. Rolleston, B.A., B.N.C.; J. E. H. Sawyer, B.A., and W. V. Shaw, Christ Church; F. J. Stevens, M.A., Exeter; A. E. Thomas, B.A., Merton; and R. Warren, B.A., New.

FIRST EXAMINATION FOR THE M.B. DEGREE.

1. *Organic Chemistry.*—G. D. Allen, non-collegiate; G. Helv-Hutchinson Almond, Hertford; L. T. Burra, University; E. Burstal, Trinity; D. Davidson, Brasenose; H. R. Dean, New; J. Freeman, University; R. C. Jewesbury, Christ Church; H. A. Philpot, New; E. Whitley, Trinity; and A. R. Wilson, Wadham.
2. *Materia Medica and Pharmacy.*—T. E. C. Cole, Christ Church; W. L. M. Day and A. C. Le Rossignol, Exeter College; and A. J. Wigmore, non-collegiate.
3. *Human Anatomy and Human Physiology.*—E. L. Farncombe, St. John's; A. H. Hogarth, Christ Church; C. M. H. Howell, Trinity; L. D. Neave, Merton; and P. F. Tinne and *H. M. Turnbull, Magdalen.

*Offers Human Anatomy only, being exempt from examination in Human Physiology.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination of the Board at the January quarterly meeting of the Examiners in the subjects indicated:—

Anatomy and Physiology.—Joseph Baird Albury, St. Mary's Hospital; Edward Whyte Aliment, St. Bartholomew's Hospital; Oliver Francis Haynes Atkey and Harold Balme, King's College, London; Francis Barton, University College, Liverpool; Algernon James Beadel, Guy's Hospital; Stanley Bennett, Cambridge University and St. Bartholomew's Hospital; Charles Reginald Bradley, St. George's Hospital; George Russell Haines Chell, Mason College, Birmingham; George Martin Clowes, London Hospital; Robert Harry Lucas Cordner, St. George's Hospital; Thomas Reginald Couldry, St. Bartholomew's Hospital; Harold Juler Cundell, St. Mary's Hospital; Harold Stewart Cassan Darbyshire, University College, Sheffield, and St. Thomas's Hospital; Edward David Davis, University College of South Wales, Cardiff; Harold Benjamin Day, King's College, London; William Frank Lydston Day, Cambridge University; Percy Toplis Drabble, University College, Sheffield; Raby Montague Grogono, London Hospital; Charles Walter Cowell Harvey, St. Bartholomew's Hospital; Philip Arthur Hendley, King's College, London; Vernon Hetherington, St. George's Hospital; James Howard, Owens College Manchester; Ernest Charles Hodgson, and Guy Hughes, St. Bartholomew's Hospital; William Ibbotson, University College, Sheffield; Reginald Lewis Jones, Cambridge University and Middlesex Hospital; Ernest Henry Kenderdine, Mason College, Birmingham; Charles Samuel Kingston, St. Bartholomew's Hospital; John Lloyd Lewis, London Hospital; John Daniel Stuart Lloyd, Mason College, Birmingham; Allan Douglas Low, Nelson Low, Owen Leonard Lowsley, William Terrance McCowen, and Edward Henry Milner-Moore, St. Mary's Hospital; Lionel Henry Moiser, Yorkshire College, Leeds, and Guy's Hospital; Charles Molteno Murray, Cambridge University and Guy's Hospital; John Patten Nettell, London Hospital; Edward Newton, Cambridge University and St. George's Hospital; George Blake Norman, Cambridge University and St. Mary's Hospital; Loraine Orton, Cambridge University and St. Bartholomew's Hospital; Thomas Hamilton Ollerhead, Arthur Frederick Pilkington, and Ernest Aubrey Price, St. Mary's Hospital; Frederick Paine, Middlesex Hospital; John Douglas Pearson, Guy's Hospital; James Houston Porter, London Hospital; George Herbert Richard and Percy John Robbins, St. Mary's Hospital; Edmund Arthur Roberts and John Latham Rushton, King's College, London; Frederic Emilius Roberts, St. George's Hospital; Robert Poole Sephton, Cambridge University and Owens College, Manchester; Edward Bertram Smith, St Bartholomew's Hospital; Frederick Morton Vincent Smith, Guy's Hospital and Mr. Cookes' School of Anatomy and Physiology; Daniel Jenkins Thomas, University College of South Wales, Cardiff; John Haydon Timothy, King's College, London; Francis John Turner, Guy's Hospital; Hugh Waddell, Queen's College, Belfast; Henry James Davey Walker, London Hospital; and Charles Murray Woods, Charing-cross Hospital.

Anatomy only.—Joseph Wilding, St. Bartholomew's Hospital.

Physiology only.—James Ewing, Yorkshire College, Leeds; and Graham Lionel John Wilson, St. George's Hospital.

44 gentlemen were referred in both subjects and one in Physiology only.

PLYMOUTH ROYAL EYE INFIRMARY.—The annual meeting of this institution was held on Jan. 10th. The medical report showed that 1890 patients had received treatment during 1899; of these, 1560 were either cured or relieved, the remainder being still under treatment. There had been 255 in-patients admitted, the daily average number being 14. The treasurer stated that the receipts amounted to £2378 and the expenditure to £2214. It is hoped that the new infirmary at Mutley, on which £13,418 has been expended, will be ready for occupation early in March.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—Mr. Arthur Chance has been elected a member of the council of the College.

A MEDICAL MAGISTRATE.—Sir John Williams, Bart., M.D., F.R.C.P. Lond., has been placed on the Commission of the Peace for the county of Carmarthen.

BARRY ACCIDENT HOSPITAL.—At the meeting of the Hospital Committee of the Barry District Council it was decided to take over the Accident Hospital and to conduct the building in future at the expense of the rates. The medical staff will continue to give their services gratuitously.

ROYAL UNITED HOSPITAL, BATH.—The annual meeting of the Royal United Hospital Working Association was held on Jan. 20th. The report showed that this useful society had supplied 1016 gifts in clothing to the hospital, representing a value of £200.

PRESENTATION TO A MEDICAL MAN.—Mr. Andrew McMillan, M.D. Aberd., of Stanley, Perth, on his recent retirement from active practice, was on Jan. 11th the recipient of a public testimonial as a token of the esteem in which he has been held by the community after a professional career of 37 years. The presentation was made by a deputation of friends who waited upon Dr. McMillan at his residence, and consisted of a solid silver salver suitably inscribed, an aneroid barometer and thermometer, and a purse containing 60 sovereigns.

DRAINAGE OF CHARD.—At the last meeting of the Chard Town Council a letter was read from the solicitor of the Lord of the Manor, stating that they were about to commence proceedings against the council for polluting the Chard reservoir with town sewage and that a writ would be issued forthwith. After some discussion the council decided to adopt a scheme of drainage recommended by Mr. C. T. Walrond, C.E., of London, estimated to cost £8000, and the town clerk was instructed to ask for a stay of the threatened legal proceedings.

FREEMASONRY.—*Rahere Lodge*, No. 2546.—An ordinary meeting of the Rahere Lodge, No. 2546, was held at Frascati's Restaurant on Jan. 9th, when Bros. Worth and Slater were raised to the degree of Master Mason. The death of Bro. Bill was announced and a vote of sympathy with his relations was unanimously passed. The following grants were confirmed: (1) £21 to the British Medical Benevolent Fund; (2) £50 to the Soldiers' and Sailors' Families Association; (3) £25 to the Depot Mobilisation Relief Fund for orphans and widows of members of the Royal Army Medical Corps; (4) £25 to the Orphans and Widows of Officers' Fund; (5) £1 1*s.* to "Our Brothers' Bed" at the Home for the Dying; and (6) £10 10*s.* to each of the three masonic charities to be placed on the list of the respective stewards for the festivals. After the meeting 20 brethren dined together.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of this society was held on Jan. 10th, Mr. Christopher Heath, Vice-President, being in the chair. Two new members were elected and the deaths of Sir James Paget, President, and Mr. Grimson, a director, were reported. Mr. Christopher Heath from the chair proposed the following motion: "The quarterly court of directors of the Society for the Relief of Widows and Orphans of Medical Men desires to record its great regret at the death of Sir James Paget, Bart., the President of the society, who has for many years taken the greatest interest in the society's welfare and until recently has regularly taken the chair at the meetings of the court." There were no fresh applications for grants and the death of a widow was announced who had received since January, 1875, £1333 10*s.* from the funds. It was resolved that £1205 10*s.* be distributed among the 48 widows, 11 orphans, and the six recipients from the Copeland Fund. The Christmas present, £531, had been given on Dec. 18th. The expenses of the quarter amounted to £74 14*s.* 6*d.* The nomination of a President was postponed to the April court.

BRISTOL MEDICAL CHARITIES.—The employés of Messrs. W. D. and H. O. Wills during 1899 voluntarily collected £364, which has been divided amongst the different medical charities of Bristol.

ROYAL VICTORIA HOMES, BRENTRY.—At the meeting of the Newport (Mon.) Corporation held on Jan. 9th it was decided to contribute £1000 to the funds of the Royal Victoria Homes, Brentry, in consideration of having seven beds reserved for a period of 25 years.

HEALTH OF CARDIFF.—Dr. E. Walford, the medical officer of health of Cardiff, states that during 1899 there were 5309 births and 2857 deaths registered, equal to a rate of 28.5 and 15·3 per 1000 respectively. The death-rate in 1898 was 14·8 per 1000, the lowest rate since 1845.

HOSPITAL SUNDAY IN BIRMINGHAM.—A meeting, presided over by the Lord Mayor, was held on Jan. 4th at the Council House, Birmingham, to receive the report and balance-sheet of the year's collections and to present a cheque to a deputation from the Queen's Hospital, on behalf of which institution the collections were made. The report stated that the day appointed was Oct. 29th and, with one or two exceptions, all the collections at places of worship were taken on that day. The number of places of worship at which collections were made was 276, thus making, with the contributions from personal or anonymous sources, 281 returns, as compared with 280 in 1898. The gross receipts amounted to £5304, as compared with £5246 in 1898, when the collection was for the General Hospital, and £5267 in 1896, the last occasion when the Queen's Hospital benefited. It was, indeed, the largest collection that had been raised for 21 years, namely, since 1878, when the collection exceeded £6000. The Lord Mayor, after the adoption of the report and balance-sheet, handed to Sir James Sawyer, on behalf of the Queen's Hospital, a cheque for £5059 2*s.* 7*d.*

THE PRESERVATIVES AND COLOURING MATTERS IN FOOD.

EVIDENCE BEFORE THE DEPARTMENTAL COMMITTEE.

MONDAY, JAN. 15TH.

THE Committee appointed by the President of the Local Government Board to inquire into the question of preservatives and colouring matters in food resumed its sittings after the holidays to-day, when it examined three witnesses. Sir HERBERT MAXWELL, M.P., Chairman of the Committee, occupied the chair.

Mr. SAMUEL RIDEAL, Doctor of Science and Fellow of the Institute of Chemistry, was the first witness and in answer to the chairman he explained that his views with regard to preservatives in food had been set out in a paper by Mr. A. G. R. Foulerton and himself published in *Public Health* for May, 1899. He and Mr. Foulerton had been engaged in a number of experiments to ascertain the actual amounts of boric acid and borax on the one hand and formaldehyde on the other, which were necessary for preserving purposes in milk. As the result of these experiments they came to the conclusion that one part of formaldehyde in 50,000 was sufficient to preserve milk, even in warm weather, for 24 hours, and that one in 2000 of a mixture of boric acid and borax was sufficient for the same purpose. Having arrived at these conclusions they then attempted to ascertain whether these quantities had any effect upon the digestibility of food. The conclusion they came to was that the effect of these quantities of preservatives was inappreciable upon the digestibility of food even after contact for 24 hours. There was a certain slight retarding effect noted, but no inhibiting effect. These experiments were made *in vitro*, but he had performed experiments upon animals to supplement them. The latter showed that the quantities of formaldehyde had no effect upon the nutrition of cats, or guinea-pigs, or rabbits. The cats experimented with were three months old and the guinea-pigs and rabbits were adults. He had tried with kittens of three or four weeks at first, but he found it difficult to feed them by hand, for the natural milk of a cat contained a very much larger quantity of albumen than the milk of a cow. Since making these experiments he had read Dr. H. E. Annett's paper in THE LANCET,[1] and he desired to point out that Dr. Annett gave no information as to the quantity of milk consumed by the kittens.

The CHAIRMAN said that Dr. Annett had told the Committee that he gave the kittens as much as they would take.

Mr. RIDEAL, continuing his evidence, said that he did not consider the quantities which he had given to be the maximum that could be taken with safety. The question really resolved itself into the susceptibility of the individual. Cases were recorded of 20 grains of boric acid having produced rash symptoms, but that would correspond to a very large quantity of milk containing one in 2000 of boric mixture. He did not think that anyone should be allowed to put an unlimited amount of preservative into milk. He advocated a limitation of the amount and a declaration to the consumer of its presence. He considered that the quantities he had mentioned were suitable quantities for preserving purposes, and if they were declared they could be used by the majority of people with impunity. In the case of invalids and young children, however, the milk should be altogether free from preservatives. Even smaller quantities than he had mentioned might be used if they were added at the time when the milk was taken from the cow.

Professor THORPE then examined the witness as to certain tables which he had prepared, the object of the examination being to show that the quantities mentioned would have little preserving effect upon the milk.—Mr. RIDEAL, however, insisted that these quantities were sufficient for preserving purposes for 24 hours even in warm weather.

In reply to Dr. BULSTRODE, witness said that he was not prepared with evidence to show that larger quantities would have effects prejudicial to health.

Mr. CHARLES CASSAL, Public Analyst for Kensington, St. George's Hanover-square, Battersea, and other districts, was the second witness. He expressed the opinion that the position of the public analyst in regard to preservatives and colouring matters in food should be clearly defined by the Legislature or by an authority delegated by the Legislature. The public analyst, he said, must have a definition of what constitutes adulteration for the purposes of the Sale of Food and Drugs Acts, and he thought that the legislature should see that the necessary experiments were carried out. His view was that the purchaser was entitled to a clear and explicit declaration of the nature of the article which he received. In the present state of things the local authorities found great uncertainty and expense in connexion with proceedings. If it were held that it was necessary to use chemical preservatives then the nature, amount, and effect of the preservatives employed should be disclosed to the purchaser. He was of opinion that it was quite possible to carry on the milk-supply of a large community like that of London without recourse to chemical preservatives. For instance, the Aylesbury Dairy Company supplied an enormous district and it never used preservatives either in milk, cream, or butter, and other large firms were in the same position. He had it from people engaged in the milk trade that it was not only possible, but right and proper, that the milk-supply of a large community should be free from chemical preservatives. What they did was to adopt cold treatment, which was found to work quite satisfactorily. If it were contended that small vendors had not the means for this treatment then he replied that they should not go into the business without proper equipment for it. His view of these preservatives was that they were foreign ingredients and that their presence constituted adulteration quite apart from the question of their injuriousness. He advocated the prohibition of preservatives, and failing prohibition the disclosure of their presence to the purchaser. At different times he had examined samples of milk supplied to large institutions and hospitals in London and although he had not in any of these cases determined the proportions he had in a number of instances found boric preparations present in the milk. He had found salicylic acid in wines—in small quantities in foreign wine and in large quantities in so-called British wine. In orange wine he had found 26·6 grains per gallon, in wine called British sherry 11·55 grains, and in black currant wine four grains. With regard to formaldehyde he was of opinion that its use was considerably on the increase. Experiments made by himself and others went to show that formaldehyde even in dilute solutions affected some of the constituents of food material in such a way as to make them practically insoluble and incapable of digestion. He had not made any determination of quantities of formaldehyde in samples of milk submitted to him, because at present there was no satisfactory process of estimation, though no doubt in time one would be devised. With regard to colouring, there was some colouring which might be considered legitimate, but others, again, were fraudulent and ought to be prohibited. For instance, he would stop the colouring of peas with sulphate of copper.

By Dr. BULSTRODE: He opposed the use of any preservative other than salt and he recommended the use of cold storage as the best means of carrying on trade.

Mr. DE HAILES, analyst to the Dairy Trade Protection Society, the third witness examined, gave to the committee an account of the means by which milk was brought from distant places to London and insisted that preservatives must be used. As for cold storage he said that many farmers were without the means for adopting it. He was aware, he said, that some milkmen make a great point about not using preservatives, but they were careful to get their supplies from farms within a short distance of London. He would not like to say that it was impossible to supply milk to London for a greater distance than 40 miles without preservatives, but he would say that the milk trade, as at present carried on, could not be carried on without preservatives. He saw great practical objection to vendors being required to make a declaration to each purchaser of the presence of preservatives, especially in view of the manner in which the Sale of Food and Drugs Acts was administered, although he should have no objection to a notice being exhibited in the shop saying that the milk sold there was preserved. He also saw objection to a declaration in each case when butter with a preservative was sold.

The Committee then adjourned.

TUESDAY, JAN. 16TH.

The Committee met again to-day with Sir HERBERT MAXWELL in the chair and proceeded with the examination of witnesses.

Mr. ALEXANDER G. R. FOULERTON, bacteriologist to the Middlesex Hospital, examined by the CHAIRMAN, said that in his opinion preservatives in milk were necessary, especially in the case of small retailers who had to supply the poor and could not get rid of surplus milk in the same way as large companies. He was of opinion that the amount of such preservatives as boric acid and formic aldehyde present in milk was absolutely harmless to the ordinary individual who took a small quantity of milk: on the other hand, he thought that to an invalid or a child the amount might be, and probably in some cases would be, decidedly hurtful. The boric acid in the case of an invalid or a child was capable of producing toxic symptoms, but he did not think that formic aldehyde would produce these symptoms, though it might make the milk less digestible. He thought that the public ought not to be allowed to buy preserved milk without knowing it in order that invalids and children might be protected. The amounts which he should consider safe for the average individual were, supposing that about one pint of milk were taken per day, 1 in 2000 of boric acid, and about 1 in 50,000 of formic aldehyde. His idea about preservatives was that they should be used to keep good milk

[1] THE LANCET, Nov. 11th, 1899, p. 1282.

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fresh and not to keep stale milk. Under the present system it was almost impossible for poor people in London to get good milk without the use of preservatives. The system might be modified but that would involve doing away with the small retailer. He was aware that in some foreign countries the use of preservatives was prohibited, but he saw great difficulties in the case of large communities whose milk-supply was brought from a distance. He did not for a moment contend that the interests of the small trader were to be placed before the interests of the public health. He confessed that the disappearance of the small trader would be an excellent thing for the public health, but he did not know whether it could be done. He advocated a declaration of the presence of preservatives in milk as a safeguard and speaking generally he was in favour of declaration rather than prohibition.

In examination by Professor THORPE the witness took exception to the idea that the experiments of himself and Mr. Rideal showed the amounts of preservatives used to have had practically no effect in preventing the change in milk. In his own experience, he said, he had kept overnight milk with one in 50,000 of formic aldehyde and found it perfectly sweet next morning, while similar milk without the formic aldehyde became tainted. Explaining his position further, Mr. Foulerton said he did not regard the question merely from the point of view of the small trader, but from the public health point of view. The small trader might sell a perfectly good milk and it might be taken into a dirty little room with half a dozen people living in it, and surely it was to the advantage of the public health that the milk should be kept in a good condition as it would be by the addition of a preservative. It might be said that these were conditions in which milk should not be kept, but, as a matter of fact, it was kept in those conditions in many of the poor districts of London. Of course, if the conditions were removed the necessity for a preservative would disappear.

By Dr. BULSTRODE: He was not aware whether 91 per cent. of the milk-supply of Birmingham was free from preservative, but if such were the case he supposed the conditions of that city must be different from those of London. He could not conceive that milk free from preservative could be kept good in a crowded house for 24 hours during the hot weather. If declaration were found to be impracticable then he should advise prohibition.

By Dr. TUNNICLIFFE: Before determining the preservatives which should be allowed there would require to be very considerable further inquiry and no doubt the list would require to be altered from time to time as circumstances demanded.

Mr. HARALD FABER, Fellow of the Chemical Society and Commissioner in this country for the Danish Government, was the next witness, and in reply to the chairman he said that his duties were to watch over the interests of Danish agricultural produce coming to this country, to keep his Government informed on various matters, to see that no misrepresentations took place, to advise as to improved methods of manufacture or sale, and to find new outlets for trade. He had in the discharge of these duties given attention to the subject of preservatives in food, and his opinion was that preservatives in food ought not to be used unless when declared. These preservatives were chemicals, and the people who used them, not being generally chemists, were unable to judge of the quality of the articles they used and they were also ignorant of their effects. The idea of preservatives was to prevent the food decomposing, but in the course of digestion these very articles of food were intended to be decomposed, and therefore the preservatives were liable to prevent proper digestion. In Denmark salicylic acid, boric acid, and certain mineral salts were prohibited altogether. Saccharin in beer and wine was not allowed unless declared on the label. There was an expression of opinion from the Royal Board of Health, dated October, 1896, that the use of boric acid or borax in food to a certain extent, one grammo daily, was considered by them to be injurious to health. No inconvenience was felt in the dairy trade of Denmark in consequence of the prohibition of preservatives. In butter and margarine no other preservative than common salt was allowed. The town of Copenhagen had about 450,000 inhabitants and they consumed a larger quantity of milk per head than the people of this country, and though the milk came from very distant places to the town the supply was adequate and in every respect satisfactory. One large company sterilised every drop of milk it sold. It was sterilised in bulk and then put in sterilised bottles and sold in that way. The heat applied was at least 86° centigrade. Previously to the prohibition of preservatives attempts had been made in Denmark to introduce them, but the dairy farmers did not take to the preservatives and the attempts never succeeded. In the case of butter some of it was exported without salt but most of it was salted to some extent, usually to the extent of about 1 per cent. The butter so salted kept good for at least three weeks, even in hot weather—indeed, long enough for the purposes of the trade. For himself, he did not believe that the use of preservatives improved the keeping of butter to any great extent; the thing to see to was that the butter was properly made. Danish butter was almost exclusively made from sterilised milk. Under an Act recently passed milk could only be sent out for food for cattle which had been Pasteurised to at least 85° C. or which had come from a cow which had stood the tuberculin test. This measure was designed to prevent the spread of tuberculosis in cattle.

By Professor THORPE: If the Pasteurisation was carefully done it did not in the least affect the flavour of the milk. He had been present at an experiment when the milk was heated to over 90° centigrade, and experts were unable to distinguish between this milk and milk which had not been heated. There had been no difficulty in Denmark in persuading people to adopt Pasteurised milk for consumption; indeed, it was a common thing for them to buy the raw milk and heat it themselves. Raw milk was regarded by a large proportion of the people of Denmark as a thing to be avoided. Witness repudiated altogether the allegation that in recent years there had been some deterioration in the keeping qualities of Danish butter. He insisted that Pasteurisation of the milk had had nothing but beneficial effects upon the butter. For years and years butter from Pasteurised milk had taken the prizes at the dairy shows.

By Dr. BULSTRODE: More than half the foreign butter imported into this country came from Denmark and consequently had no preservative beyond 1 per cent. of salt.

Mr. A. GILBEY of Messrs. W. and A. Gilbey, wine-merchants, the third witness examined, gave evidence as to the presence of preservatives in wines imported into this country. He stated that salicylic acid is very little used and indeed that it is unnecessary to use it in wines of the strength of those which are imported into England. In the case of his firm if they had reason to suspect its use in a particular country or district they made it a condition in their contracts that the wine should be free from it. His firm were not aware whether salicylic acid was injurious to health, but there was a prejudice against it in the public mind and for that reason they insisted on its absence.

The Committee then adjourned.

WEDNESDAY, JAN. 17TH.

The Committee met again to-day, Sir HERBERT MAXWELL presiding, and proceeded with the examination of witnesses.

Mr. T. CARRINGTON SMITH, dairy farmer in Staffordshire, chairman of the Dairy Products Committee of the Central Chamber of Agriculture, along with Professor JAMES LONG, Cheshunt, gave evidence on behalf of the Central Chamber of Agriculture.—Mr. SMITH informed the committee that the Chamber had passed a resolution declaring that it was opposed to the employment of preservatives and colouring matters in articles of dairy produce, whether British or imported, and appointing representatives to urge before this Committee that as preservatives and colouring matters were believed to be injurious to the health of invalids and children their use should be prohibited. Speaking from his own experience he said that the prohibition of preservatives would not interfere with the daily supply of fresh milk to large communities. His farm was over 120 miles from London, and during the year from Michaelmas, 1898, to Michaelmas, 1899, he sent to London the whole of his milk with the exception of the Sunday morning milk and though he used no preservative there had not been the slightest suspicion of any sourness, there had been no complaint made to him by the consignees, and he had never lost a single pint of milk. The morning milk reached Willesden at about 11.15 A.M. and the evening milk late overnight. Mr. Smith explained that he cooled the milk by passing it over a series of tubes through which cold water ran. Although the word "refrigerator" was used to describe the apparatus, the temperature did not at all approach the freezing point. In his opinion a good water-supply was a *sine quâ non* for dairying purposes and all that was necessary for this cooling process was a good supply of water. Mr. Smith said that he and his farmer friends thought that the consignees in the large towns might do more than they do at present to keep the milk cool after they have received it, and not only so, but also that the railway companies might arrange to have a better temperature in their milk vans. His idea of a good temperature for milk was 60° Fahrenheit. With regard to colouring, Mr. Smith said that when he was engaged in the cheese trade he used annatto to make a highly-coloured cheese, which had great favour in certain industrial centres in the North of England. Nobody, however, was deceived, for the material was well known to be artificially coloured. As a representative of the Central Chamber of Agriculture he advocated the prohibition of both preservatives and colouring matters, though personally he did not think the two things stood upon the same platform.

By Professor THORPE: The two things that he looked to to keep milk in good condition were cleanliness and coolness, both of which were within the reach of the ordinary farmer, and he submitted that if he were able last summer in the exceptionally hot weather to send his milk every day to London without recourse to preservatives, the milk trade generally could be carried on without them.

By Dr. TUNNICLIFFE: He did not believe that a legal prohibition of preservatives would have more than a temporary effect upon the price of milk.

Professor JAMES LONG in the course of his evidence said that he was distinctly of opinion that dairy traffic generally, and the milk traffic in particular, could be carried on without the use of preservatives. Simply by taking proper precautions an ample and satisfactory supply of milk could be maintained in large communities. If the use of preservatives were prohibited the farmers would have no difficulty in supplying the milk and the buyers in the large cities would no doubt protect themselves by constructing cool chambers for the reception of the milk. He thought that a great deal to be done in the way of cleaning the milk by separation, for milk not cleaned could not be expected to keep. Professor Long exhibited to the Committee a quantity of slimy matter which had been taken from six gallons of milk by an ordinary sieving process. He considered that purchasers were entitled to be protected from the introduction unknown to them of what might be harmful drugs into a common article of food like milk, and he suspected that a good deal of injury was being done by the increasing use of these preservatives. He also objected to the use of colouring matters and said that the high colour sometimes desired in dairy products could be attained by a selection of particular breeds of cattle.

Mr. WALTER WILLIAM FISHER, President of the Society of Public Analysts and public analyst for the counties of Oxford, Berks, and Bucks, the city of Oxford, and the borough of Banbury, said that he and Dr. Thomas Stevenson had been asked by the Society of Public Analysts to give evidence. He could not say that he had the authority of the society to represent its views, because the society as a body had not come to any definite conclusion upon some of the important matters before the Committee. With the assistance, however, of members of the society he had prepared a statement of the facts of the case with regard to the use of preservatives and colouring matters in food and he would hand it in for the information of the Committee. His opinion was that the free use of preservatives should not be legalised but that indeed some effort should be made to limit their use. There could be no doubt that the use of preservatives had grown very considerably in recent years and unless it was checked in some way it would further extend and it would become very difficult if not impossible for people to get articles of food free from preservatives. His opinion was that in some cases preservatives should be prohibited altogether and in others their presence should be declared. He would prohibit preservatives in new milk when it was sold as new milk, and when milk was not sold as new milk he would recommend that there should be a maximum limit for preservatives prescribed. He would not be dogmatise about formalin, though he was rather suspicious about that preservative because he had noticed that when milks were preserved with it it was very difficult to dissolve the curd in hydrochloric acid. He could not say of his own knowledge what the effect of small doses of formalin would be upon the human organism. The statements of the facts of the case which he had submitted to the Committee showed that there was great variation in practice as to

quantity of preservative added to milk. The people who sold the preservative stated on the package that it was absolutely harmless and the milkman had no special knowledge which enabled him to test the accuracy of the statement, and therefore it appeared to him it was desirable to fix a superior limit. He admitted that at present it was difficult often to convince magistrates, but if a limit were fixed it would be something to which public analysts could appeal. If this Committee got together sufficient evidence to show that formaldehyde was undesirable in food, then the fact that it was difficult to determine formaldehyde quantitatively would be a good argument for its prohibition. He considered that new cream should be treated like new milk, and that in the case of fresh meats and fish if they were sold as fresh they should be without preservatives. As to salted and preserved meats and fish, if a limit were fixed it should be a low one. He was not prepared to say that preservatives should not be allowed in such articles as ham and bacon. He had very little information about colouring matters, though he was aware that Congo red was used to colour meat, that bloaters were coloured with a little red earth, and that saltpetre was also used to improve the colour of meat. He considered it objectionable to colour peas with copper.

Dr. THOMAS STEVENSON, President of the Institute of Chemistry, Adviser to the Home Office and Public Analyst, said he objected to the use of preservatives in milk because of the risk to invalids and infants. He attached great importance to the experiments of Dr. Annett; he considered them extremely valuable, and he hoped they would be continued upon a larger scale. He was of opinion that the indiscriminate use of preservatives was attended with very great danger, especially to people suffering from certain complaints. As for salicylic acid it had very considerable effect upon some people, though upon others it had very little. The fact that it had little effect upon some was no proof that it was non-injurious. In connexion with lead poisoning it was found that many people drank the lead-polluted water and that only a fraction of them suffered. One objection to boric acid in milk was that it enabled the milkman to pass off as fresh milk that was really stale. On account of the odour it gave out only small quantities of formaldehyde could be used without detection, but even small quantities must harden the food very much, and therefore be objected to it altogether in such an article as milk. He thought it would be well to prohibit preservatives, although upon health grounds he saw no considerable objection to the use of boric acid in very minute quantities in butter and probably in a few other articles. His strongest objection was to the use of preservatives in milk. In regard to colouring matters there had been many changes in recent years and especially in connexion with confectionery, and they had been upon the whole advantageous. He would prohibit the use of copper to colour peas because of the danger to health and because he considered it unnecessary.

The Committee then adjourned.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, King William-street, Strand, London.
Aids to Materia Medica. Part III. By William Murrell, M.D., F.R.C.P. 1900. Price 2*s.* 6*d.*

BALE, J., SONS, AND DANIELSSON, Great Titchfield-street, London, W.
Darwin and Darwinism, Pure and Mixed: A Criticism with some Suggestions. By P. Y. Alexander, M.A., LL.D. 1899. Price 7*s.* 6*d.* net.

BLACKIE AND SON, Old Bailey, London.
An Introduction to Analytical Chemistry. By G. G. Henderson, D.Sc., F.I.C., and M. A. Parker, B.Sc. 1899. Price 5*s.*
The Principles and Practice of Modern House Construction. Edited by G. L. Sutcliffe. Illustrated. Divisional Vol. vi.

BOYLE, R., AND SON, Holborn Viaduct, London.
The Boyle System of Ventilation.

CHURCHILL, J. & A., Great Marlborough-street, London.
Diet and Food. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P. Second edition. Illustrated. 1900. Price 2*s.*

F. A. DAVIS COMPANY, Philadelphia.
The Surgical Diseases of the Genito-Urinary Tract, Venereal and Sexual Diseases. By G. F. Lydston, M.D. 1899.

GLAISHER, H. J., Wigmore-street, London.
On Granular Kidney and Physiological Albuminuria. Being the Lettsomian Lectures. By Sam. West, M.A., M.D. Oxon., F.R.C.P. Lond. Price 7*s.* 6*d.* net.

GRESHAM PUBLISHING COMPANY, Farringdon-avenue, London.
The Principles and Practice of Modern House Construction. Edited by G. Lister Sutcliffe. Illustrated. Vols. i. and ii. 1899. Price 50*s.*

HADDEN, BEST, AND CO., West Harding-street, Fetter-lane, London.
Local Government Law and Legislation for the Year ending 30th September, 1899. Edited by W. H. Dumsday, Barrister-at-Law. 1899.

HAZELL, WATSON, AND VINEY, Creed-lane, Ludgate-hill, London.
The Mirage of Two Buried Cities. By J. F. Horne, M.D., F.R.S.E. 1900. Price 10*s.* 6*d.*

KEGAN PAUL, TRENCH, AND CO., Charing Cross-road, London.
Life and Happiness. By Auguste Marrot. Price 2*s.* 6*d.* net.

LEWIS, H. K., Gower-street, London.
Letter, Word, and Mind Blindness. By J. Hinshelwood, M.D., F.F.P.S. Glasg. 1900. Price 3*s.*

LONGMANS, GREEN, AND CO., London.
25th Annual Edition of the Classified Directory to the Metropolitan Charities for 1900, with an Appendix. By W. F. Howe, editor. 1900. Price 1*s.*

MACLEHOSE, JAS., AND SONS, Glasgow.
Glasgow Hospital Reports. Vol. ii. Illustrated. 1900.

MACMILLAN AND CO., London.
A Manual of Zoology. By the late T. J. Parker, D.Sc., F.R.S., and W. A. Haswell, M.A., D.Sc., F.R.S. Illustrated. 1899. Price 10*s.* 6*d.*
Lessons on Prescriptions and the Art of Prescribing. By W. Handsel Griffiths, Ph.D., L.R.C.P. Edin. New Edition. 1899. Price 3*s.* 6*d.*

MASSON ET CIE., Paris.
Leçons de Clinique Médicale. Par Dr. J. Vires. 1900.

PENTLAND, YOUNG J., Edinburgh.
The Edinburgh Medical Journal. Edited by G. A. Gibson, M.D., F.R.C.P. Edin. New series. Vol. vi. 1899.

SCIENTIFIC PRESS, Southampton-street, London.
Nursing in Diseases of the Throat, Nose, and Ear. By M. Yearsley, F.R.C.S. 1899. Price 2*s.* 6*d.*

SCOTT, WALTER, Paternoster-square, London.
The Races of Man: An Outline of Anthropology and Ethnography. By J. Deniker, Sc.D., Paris. Illustrated. 1900. Price 6*s.*

SMITH, ELDER, AND CO., Waterloo-place, London.
Transactions of the Pathological Society of London. Vol l. 1899.

SWAN SONNENSCHEIN AND CO., London.
Muscle, Brain, and Diet: A Plea for Simpler Foods. By E. H. Miles M.A. Camb. 1900. Price 3*s.* 6*d.*

The British Almanac and Family Cyclopædia for 1900, 73rd year of issue (Chas. Letts and Co., Royal Exchange, London, E.C.), price 1*s.*—Mental Nursing, by William Harding, M.D. Edin., M.R.C.P. Lond. (The Scientific Press, Southampton-street, Strand, London, 1899), price 1*s.*—The Problem of South African Unity, by W. B. Worsfold, 1900 (Geo. Allen, Charing-cross-road, London), price 6*d.* net.—Home Nursing of Sick Children, by J. D. E. Mortimer, M.B., F.R.C.S., L.S.A., 1899 (The Scientific Press, London), price 1*s.*

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BARLOW, JOHN, M.D., F.R.C.S., has been appointed Additional Examiner in Clinical Surgery in the University of Edinburgh.

BRAMWELL, EDWIN, M.B. Edin., has been promoted Senior House Physician to the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, vice J. S. Collier.

BROOK, WM. F., F.R.C.S.Eng., of St. Helen's-road, Swansea, has been appointed by the Secretary of State for the Home Department to act as a Medical Referee under the Workmen's Compensation Act, 1897, for the Neath Division of County Court Circuit, No. 31.

BUZZARD, E. FARQUHAR, M.A., M.D. Oxon., M.R.C.P., has been appointed Junior House Physician to the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, vice E. Bramwell.

CLEGG, J., M.B. Lond., M.R.C.S., has been appointed an Honorary Medical Officer to the Urmston Cottage Hospital.

COLES, A. C., M.D. Edin., has been re-appointed Medical Officer of Health by the Denton District Council.

DINGWALL, A. M.B., C.M. Aberd., has been appointed Medical Officer for the Kinsham and Pembridge Sanitary District of the Kington Union.

HANSON, E. R., L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer for the Eighth Sanitary District of the Southmolton Union.

JENKINS, HERBERT STANLEY, L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Bristol Royal Hospital for Sick Women and Children, vice Wyndham Milligan, resigned.

LEADER, HAROLD, M.B., has been appointed House Physician to the East London Hospital for Children and Dispensary for Women, Shadwell, London, vice Percy S. Blaker, resigned.

MACDONALD, D., M.B., C.M. Glasg., has been appointed Local Medical Officer for Glenmoriston by the Aird District Committee.

MACDONALD, R. C., M.B. Aberd., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Local Medical Officer for the Boleskine portion of the parish of Boleskine and Abertarff.

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MORRIS, C. D., L.R.C.P.Lond., M.R.C.S., has been re-appointed District Medical Officer by the Sunbury Urban District Council.

QUAYLE, EDWIN., L.R.C.P. Lond., M.R.C.S., has been appointed an Honorary Medical Officer to the Urmston Cottage Hospital.

SAUNDERS, E. SYMES, M.D., C.M. Aberd., has been appointed Medical Officer to the Dispensary, Royal Albert Hospital, Devonport, vice Alonzo Rider, resigned.

SCATLIFF, A. W., L.R.C.P., L.R.C.S. Edin., D.P.H. Eng., has been re-appointed Medical Officer by the Margate Town Council.

SLADEN, G. W. B., L.R.C.S. Irel., has been re-appointed Medical Officer of Health by the Gainsborough Rural District Council.

THOMAS, JABEZ, F.R.C.S. Eng., Ty Cerrig, Swansea, has been appointed by the Secretary of State for the Home Department to act as a Medical Referee under the Workmen's Compensation Act, 1897, for the Neath Division of County Court Circuit No. 31.

TURNER, F. S., L.R.C.P., M.R.C.S., has been re-appointed Medical Officer for Penn and Coleshill of the Amersham Union.

WILSON, W. CHEYNE, M.D., C.M. Edin., has been appointed by the Admiralty to give instruction in the Roentgen rays at the Naval Hospital, Plymouth, to such naval medical officers as may be detailed to go through the course.

WOOD, W. DYSON, L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer of Health by the Henley District Council.

Vacancies.

For further Information regarding each vacancy reference should be made to the advertisement (see Index).

BATH GENERAL OR ROYAL MINERAL WATER HOSPITAL, Bath.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and apartments.

BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon for twelve months. Salary £80 per annum, with apartments, board, and attendance.

BRIXTON DISPENSARY, Water-lane, Brixton.—Resident Medical Officer for two years, unmarried. Salary £150, with furnished apartments, attendance, coals, and gas.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—House Surgeon. Salary at the rate of £50 per annum, with board and residence in the hospital.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant. Tenable for three months on payment of eight guineas.

CHESTER GENERAL INFIRMARY.—Visiting Surgeon for two years. Salary £80 per annum, with residence and maintenance in the house.

CITY OF LIVERPOOL.—Visiting Physician to the City Hospital North, Netherfield-road. Salary £130 per annum. Applications to the Town Clerk, Liverpool.

COUNTY BOROUGH OF CROYDON.—Medical Officer of Health for the Borough. Salary £500 per annum, increasing annually by £50 to a maximum of £600 per annum (subject to statutory deductions). Apply to the Town Clerk, Town Hall, Croydon.

DONCASTER GENERAL INFIRMARY AND DISPENSARY.—Indoor Dispenser and Assistant to the House Surgeon. Honorarium 20 guineas per annum, with board, lodging, and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL, Thorofare, Ipswich.—Second House Surgeon for one year, unmarried. Salary £60 per annum, with board, lodging, and washing.

HULL ROYAL INFIRMARY.—Honorary Surgeon.

LEICESTER INFIRMARY.—House Physician for twelve months. Salary £100 per annum, with board, apartments, and washing.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY, Loughborough.—Resident House Surgeon. Salary £100 per annum, with furnished rooms, attendance, and board.

MASON UNIVERSITY COLLEGE, Birmingham.—Lecturer on Osteology and Chief Demonstrator of Anatomy.

METROPOLITAN ASYLUMS BOARD.—Three appointments of Assistant Medical Officers at the Fever and Small-pox Hospitals, unmarried. Salary £160 per annum the first year, £180 the second year, and £200 the third and subsequent years, with board, lodging, attendance, and washing (subject to statutory deduction). Applications to the Clerk to the Board, Norfolk-street, Strand, W.C.

NEWARK-UPON-TRENT HOSPITAL AND DISPENSARY.—House Surgeon, unmarried. Salary £80 per annum, with board and lodging in the hospital.

NOTTINGHAM CITY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £125, with board, apartments, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon. Salary £140 per annum. Special arrangement made as to board, &c.

NOTTINGHAM GENERAL HOSPITAL.—House Surgeon for two years. Salary £100, rising £10 a year to £120, with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London.—House Surgeon from Feb. 1st to May 7th. Salary at the rate of 50 guineas a year, with board and residence.

PARISH OF ROUSAY AND EDILSHAY, Orkney.—Resident Medical Officer. Salary £51 per annum. Apply to the Inspector of Poor, Rousay, Orkney.

PLYMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £125 per annum, rising to £150, with furnished apartments in the Asylum. Board and washing free.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Election to the Court of Examiners.

ROYAL CORNWALL INFIRMARY, Truro.—House Surgeon, unmarried. Salary £85, with board (excluding stimulants) and apartments.

SALISBURY INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, London.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

THE CHIEF INSPECTOR OF FACTORIES has given notice of vacancies for Certifying Surgeons under the Factory Acts at East Ilsley in the county of Berks, at Southampton in the county of Southampton, at Wollaston in the county of Northampton, at Edinburgh in the county of Midlothian, at Haddenham in the county of Cambridge, at Kirkoswald in the county of Cumberland, and at Thornbury in the county of Gloucester.

UNIVERSITY COLLEGE, London.—Assistant Surgeon and Assistant Physician.

UNIVERSITY OF GLASGOW.—Three Examiners in Medicine. Salary attached to each is £30 per annum.

WESTERN DISPENSARY, Rochester-row, Westminster.—Resident Medical Officer, unmarried. Salary 100 guineas per annum, with furnished rooms, coals, gas, and attendance. Apply to the Secretary.

WEST HERTS INFIRMARY, Holly-grove, Boxmoor.—Locum Tenens for six to 12 months or longer. Salary at the rate of £100, with board, fire, lights, furnished rooms, attendance, and washing.

WEST KENT GENERAL HOSPITAL, Maidstone.—Assistant House Surgeon for six months. Honorarium at the rate of £50 per annum, with board and residence.

WORCESTER GENERAL INFIRMARY.—Assistant House Surgeon and Dispenser for two years, unmarried. Salary £70 per annum, with board, residence, and washing.

Births, Marriages, and Deaths.

BIRTHS.

COOPER.—On Jan. 14th, at Belsize-road, N.W., the wife of Ernest Frederic Cooper, M.R.C.S., of a son.

DODS.—On Jan. 8th, at Marylebone-road, N.W., the wife of Louis H. Dods, Surgeon, of a daughter.

GASKELL.—On Jan. 10th, at Underhill-road, East Dulwich, the wife of Leonard S. Gaskell, M.R.C.S., of a daughter.

IONIDES.—On Jan. 14th, at First-avenue, Hove, the wife of T. H. Ionides, M.B., F.R.C.S., of a daughter.

LOWSLEY.—On Jan. 10th, at City-road, Finsbury-square, E.C., the wife of L. D. Lowsley, L.R.C.P., M.R.C.S., of Hampstead Norris, Berks, of a son.

SANDERS.—On Jan. 6th, at Villa Nina, Cannes, the wife of Gordon Sanders, M.D., F.R.C.P. Edin., of a daughter.

STURROCK.—On Jan. 12th, at Rome-terrace, Broughty Ferry, N.B., the wife of J. F. Sturrock, M.B., of a daughter.

MARRIAGES.

HANCOCK—SELFE.—On Jan. 10th, at the Church of St. Michael and All Angels, Lower Sydenham, John Edwin Hancock, M.R.C.S., L.R.C.P., D.P.H., of Hurst House, Hurst-green, Sussex, to Clara Maberly, eldest daughter of John Henry James Selfe, of "Ingham," Mayow-road, Sydenham, S.E.

HENSON—MAJOR.—On Jan. 11th, at the Parish Church, Croydon, William Warner Henson, M.R.C.S., L.R.C.P., of Impendhla, Natal, to Dorothy Wickham Featherstonehaugh Major, second daughter of the late C. M. Major, of Cromwell House, Croydon.

JONES—BURMAN.—On Jan. 16th, at St. Matthew's Church, Upper Clapton, by the Rev. J. Cullin, M.A., William Black Jones, M.D., B.S. Lond., of Llangammarch Wells, Breconshire, elder son of the late Rev. William Mead Jones, D.D., to Elizabeth Ada, third daughter of William Kimin Burman, of Clapton, N.E.

MANNINGTON—CLARKE.—On Jan. 4th, at Hawkhurst, Kent, Frank Mannington, F.R.C.S., of Belmont, Muswell-hill-road, N., to Lilian, daughter of E. R. Clarke, Esq., of Hawkhurst.

PLUMMER—MOXON.—On Jan. 17th, at St. Nicholas, Great Yarmouth, by Rev. D. M. Wauchope, vicar of New Bilton, Rugby, assisted by the Rev. Canon Rogers, vicar of Great Yarmouth, Selby W. Plummer, M.D., of Durham, to Lilian, daughter of the late Thomas Hy. Moxon, M.R.C.S., of Great Yarmouth.

ROGER-SMITH—WOODD.—On Jan. 10th, at the Parish Church of Hollington, St. Leonard's-on-Sea, by the Rev. Trevor Basil Woodd, of St. Peter's, Eaton-square, assisted by the Rev. T. W. Adam, rector of the parish, Hugh R. Roger-Smith, M.D., M.R.C.P., third son of Professor T. Roger-Smith, of University College, London, to Dorothy Eugenia, third daughter of the late Rev. Basil Woodd, of Leckby, Hollington Park, St. Leonard's.

ROW—HARRILD.—On Jan. 10th, at St. Bartholomew's Church, Sydenham, Charles Martin Row, M.R.C.S., L.R.C.P. Lond., of Pleydell's Warbleton, Sussex, to Mary Josephine, elder daughter of Horton Harrild, of Westwood, Sydenham.

DEATHS.

CASTELLOTE.—On Sept. 26th, 1899, at Kabambaré, Central Africa, Ramon Horace Castellote, M.D. Lond., F.R.C.S., son of Ramon Castellote, Salcott-road, Wandsworth-common, aged 29 years.

COLLUM.—On Jan. 12th, at Surbiton, Robert Collum, M.D., M.R.C.S., M.R.C.P., aged 84 years.

MANBEY.—On Jan. 13th, at Stanley Villa, Stanley-road, South Acton, George Manbey, M.R.C.S.

ROBERTS.—On Jan. 12th, at the Hawthorne, Croxley-green, Herts, John Henry Roberts, F.R.C.S., in his 87th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE HYGIENE OF A HOUSE.

A CORRESPONDENT has sent us some verses by an unknown poet relative to the frost and the plumber; the following are some of them. Such troubles at this season of the year are not altogether unknown, and the lines may serve, our correspondent thinks, as a text for a little advice as to what should be done in a similar emergency, pending the arrival of the necessary plumber:—

"Sing hey! sing ho! for the plumber bold!
He fears not the grip of the Ice King cold.
In the bar saloon of the 'Block and Fall'
With his mate he awaits the urgent call
When the terrified household fly in vain
As the water squirts from the bursting main;
When the thaw lets the pent-up water flow;
Sing hey for the plumber bold! sing ho!"

It is far too often forgotten that a healthy house is an enormous factor in the health of the inmates, and we fear that the average householder has but the haziest idea of the construction of the various parts of a house. Damp, for instance, is productive of many evils. It is true that so far this year we have had no frost worth speaking of, and it is some years since the weather was cold enough to reproduce the miseries so vividly depicted by Leech as happening to the Briggs family. But we cannot command the weather and it is not always feasible to have the water-pipes in a house carefully packed. Every householder can take the advice given below and can learn the disposition of the pipes in a house, as to whence they come and where they go. If he knows where the taps are and how to turn off the supply he may be able to save various expenses in the matter of rotted floors and ceilings, to say nothing of illness arising from damp and its consequences. Water-supply, sewerage, and lighting are three subjects with which every householder should have some acquaintance, at least to the extent of being able to turn off the water in his house in a case of emergency. A house cannot be expected to go like clockwork, and even a clock wants some attention. Many a room has been made damp and unwholesome by leakage from a defective gully-pipe. It is quite within the province of a medical man to give a little attention to these matters, so that, knowing, he may be able to instruct those of his patients who know not.

The expansive force of water at the moment when it solidifies as ice is so enormous that a very small quantity is capable of overcoming an amount of resistance out of all proportion to its bulk. When water freezes in a pipe it is seldom that it occurs at more than one or two points, unless, of course, the pipe is very much exposed. In the act of freezing the pipe is usually burst, though the water cannot escape at the fracture thus made until the ensuing thaw removes the obstruction. This is the exciting moment when the terrified householder sends for the much-sought-after plumber. No one can expect to be successful in acting in an emergency of this nature if at the supreme moment he is entirely ignorant of every constructive detail of the house he occupies. He should at least be acquainted with the following facts: (1) the position of the stop-valve in the main supply-pipe; (2) the position of the cisterns; and (3) the destination, and, if possible, the course, of the several service-pipes from each cistern.

The situation of the stop-valve in the water company's main supply-pipe.—This is generally fixed at the nearest point to the public way, either in a cellar or sunk in the ground by the boundary-fence. See that it is oiled and in working order and ascertain which way it has to be turned to open or close it.

The positions of the cisterns supplying the several fittings.—If there be more than one note which fittings each one supplies.

The destination of the several service pipes.—Every cistern should have a stop-valve in each of the service pipes leading from it at a point close to the cistern, and each valve should have a label attached stating the service which it controls—whether bath, closets, sinks, &c. In the absence of such valves the services themselves should be labeled, and one or more wood plugs about four feet long with taper ends (stout broom-handles will do) should be kept in readiness near the cistern. These, if properly pointed, can be inserted as a plug into either a small or large pipe at the point of connexion with the cistern. The reflection from the surface of the water renders it at times difficult to see the open ends of the pipes at the bottom of the cistern. This can be easily overcome with a candle and any kind of reflector to throw the light to the bottom of the cistern, such as a white basin or a bright dustpan, when the orifice of the pipe can be distinctly seen and the plug can be inserted into the mouth of the defective service. At any time the services can be easily traced for labeling by the insertion in rotation of the plug stick, when by trying the closets and taps it can be noted which supplies are cut off. In testing a time allowance must always be made for the amount of water remaining in the pipe, also where a closet is supplied through a disconnecting cistern it will be necessary to try a second discharge. The old pan-closets are an exception, being supplied through a valve in the bottom of the larger cistern, the end of the service pipe being in this case invisible. This service, therefore, cannot burst, the pipe, excepting when the closet is in use, being empty.

A burst from frost may be either in the main supply or in one of the service pipes leading from the house cistern; this can as a rule be located before the frost breaks.

When the burst is in the main supply.—Unless during frost it is noted that the cisterns are filled daily several days may elapse before the fact is indicated by the whole house being without water. In this case at once turn off the stop valve already described. After the thaw has well set in slightly open the valve and watch the result before turning the same fully on.

When the burst is in one of the down services.—Turn off the valve or plug that particular service, after which an endeavour may be made to thaw the same by artificial heat, cloths soaked in boiling water, &c. If the pipe has burst the water remaining in the pipe will soon indicate the position of the fracture, when after repair provision may be made to prevent a recurrence. In the event of a burst pipe discharging and no provision having been made to meet the emergency the pipe can be flattened. To do this draw the pipe as far as possible away from the wall and place behind it any piece of metal, such as a hammer or flatiron, to act as an anvil, and then with a few heavy blows with a hammer flatten the pipe just above the fracture. Care must be taken to strike the pipe fairly with the flat face of the hammer or the sharp edge may cut it and make matters much worse. If the burst pipe is not accessible turn off the tap of the main supply or tie up the ball-valve in the cistern and run off the water through the closets, taps, &c.

Whenever frost affects the cistern or supply-pipe that feeds the kitchen or any high-pressure boiler the fire must be extinguished before the water in the boiler is withdrawn or evaporated. It is good policy to remember that in all cases prevention is better than cure.

"IN HIS NAME: THE RECORD OF THE R.S.U. AND SHAFTESBURY SOCIETY."

WE have received from a correspondent two pages of a periodical bearing the above title. He asks our opinion of the conduct of the officials of the Ragged School Union and Shaftesbury Society as exhibited in the following little article, taken from page 6 of their presumably official journal.

GIVING NATURE A CHANCE.

On Wednesday, Dec. 20th, a demonstration of manipulative surgery and scientific massage was given by Professor Atkinson of Park-lane, in the Lower Hall, Exeter Hall.

One negative advantage at the very least may be claimed for his system—the child is still *all there* when he has finished. Every surgeon cannot say as much, and we have known parents object to operations upon their children, and the children have recovered without them. In these instances there would have been the irreparable loss of members.

We therefore felt justified in giving a fair chance to the "Nature assisted by Science" teaching and practice of the Professor. Accordingly, 500 cripples were brought to Exeter Hall to a treat. A number of the children were examined, with the result that a verdict was given that four out of five of the children present could be cured.

The practical outcome is, that there is every likelihood during the year 1900 of a representative party of the afflicted children of London being restored to soundness of limb and body.

We think on reading the above paragraphs that the parents and natural or legal guardians of 500 cripples have a distinct cause of grievance against the gentlemen who have suffered little children to come unto "Professor" Atkinson. A promise has been held out to them on no scientific grounds whatever that 80 per cent. of the crippled children can be made whole. It is cruelty thus to juggle with the hopes of the sick. Nor is it comprehensible to us why giving the "Professor" an advertisement should be called "giving Nature a chance."

THE METROPOLITAN ASYLUMS BOARD AND ITS ASSISTANT MEDICAL OFFICERS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Jan. 13th there appeared an advertisement for an assistant medical officer at the Caterham Asylum of the Metropolitan Asylums Board. Having had experience of that Board I should like to point out for the benefit of intending applicants a few of the conditions under which the assistant medical officers at their asylums work. On entering upon my duties I was taken to my quarters by the steward, who apologised for the lack of accommodation offered me, explaining at the same time that such conditions were only temporary. My "quarters" consisted of one room in which I slept, the same room had also to serve me as an office, dining-room, as well as for the reception of personal visitors, and indeed for every use that it is possible to put a room to. All that was temporary as far as I was concerned consisted in the facts that on committee days a screen was taken from the room, so that visitors could see the bed and the fact that I had a knob put on the door after I had occupied my quarters for three weeks. Since I left there have been improvements at that particular asylum. The junior assistant medical officer now shares

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in a common dining-room and has consequently only to use his bedroom for an office and living-room generally. The medical superintendents at their asylums are not allowed to write testimonials. The Metropolitan Asylums Board, however, accept testimonials from other asylums. Such conditions prevailing one is not surprised to find that after years of service under the Board promotion is impossible elsewhere, and as the Board is not enamoured with the idea of promoting its own men the assistant medical officers find themselves in an awkward position. At other asylums it is the practice to allow the assistant medical officer the use of spare bedrooms in which to lodge a visitor, it being recognised that life in asylums is somewhat monotonous. In my time when a visitor arrived his host laid himself down on his couch (if he had one, I had not) and with his clothes on was happy that his brother from Scotland or a medical friend from America had come to see him. They were the only visitors whilst I served the Metropolitan Asylums Board. Now] the Metropolitan Asylums Board will no longer allow any visitor to be the guest of their assistant medical officer overnight.

Would intending applicants for the post advertised kindly apply to any of the Metropolitan Asylums Board's medical officers for information?

I am, Sirs, yours faithfully,

F. J. S.

THE DEARTH OF QUALIFIED ASSISTANTS.

To the Editors of THE LANCET.

SIRS,—I noticed in THE LANCET of Jan. 13th the great difficulty of obtaining qualified assistants. I think the occasion a suitable one to bring before your notice the fact that there are at present some unqualified men who through deficient capital are unable to meet expenses of certificates and examination, though in some cases the sum is not large, and they have only the final to pass, as is my own case. It would be an unspeakable blessing to such men if you brought their cases before the profession with the object of starting a fund to enable them to qualify and overcome the difficult position they are placed in owing to the General Medical Council's regulations. I am sure they would sign any contract to repay the sum on qualifying.

I am, Sirs, yours faithfully,

Jan. 16th, 1900. UNQUALIFIED.

WIDAL'S TEST.

To the Editors of THE LANCET.

SIRS,—I would feel grateful to you if through your columns in answer to correspondents you would answer this question: What is Widal's test for differentiation of simple continued and typhoid fever and how is it applied?

I am, Sirs, yours faithfully,

Jan. 10th, 1900. SURGEON.

* Widal's test for typhoid fever depends upon the fact that the serum of the blood of a patient suffering from that disease has a certain action upon the typhoid bacillus. The method of applying it has been slightly varied by different observers, but the following as introduced by Dr. Johnston of Montreal can be relied upon: A drop of the patient's blood is secured, placed on a clean stick, and allowed to dry. A loop of a bouillon culture of the typhoid bacillus is placed on a clean cover-glass and to this is added a large loopful of a watery solution of the dried blood. From the mixture of blood and typhoid bouillon a "hanging drop" preparation is made and examined with a high power objective; if the patient is suffering from typhoid fever the typhoid bacilli rapidly form clumps. If the patient has not typhoid fever this clumping does not take place.—ED. L.

A SUSPICIOUS ADVERTISEMENT.

THE following advertisement appears in the *Potteries Advertiser* for Jan. 13th, 1900:—

TO LADIES.

MRS. TILSLEY requests all LADIES suffering to consult her *at once*, her treatment being simply a help to nature. All Wounds successfully treated by

MRS. TILSLEY,

114, Botteslow St. (off Charles St.), HANLEY.

We do not quite know what the cryptic sentence, "All wounds successfully treated" means.

VOMITING OF PREGNANCY.

To the Editors of THE LANCET.

SIRS,—Would you or any of your readers kindly give me a hint *re* the treatment of sickness in early pregnancy. I have tried cerium oxalate, hydrocyanic acid, and nux vomica without result.

I am, Sirs, yours faithfully,

Jan. 13th, 1900. OBSTET.

A SANITARY WATER-CLOSET SEAT.

THERE can be little doubt that the seat of the water-closet is sometimes a source of infection, and many devices have been suggested from time to time with a view of obviating any insanitary possibility of this sort. Mr. G. N. W. Thomas, M.B., Ch.B. Edin., of 252, Girlington-road, Bradford, sends us a sketch of a new design for a water-closet seat which he has registered at the Patent Office. The seat is circular, but fairly wide gaps are provided immediately in front and at the back, the former to avoid contagion with septic matter from the genital organs, and the latter to prevent soiling with fæcal matter under careless use. We are under the impression that a similar arrangement has been formerly proposed. There are no doubt good features in it, one distinct advantage being also that the closet may be used as a urinal with a much diminished risk of wetting the seat. It would be well if some such arrangement could be introduced into public lavatories.

One Anxious to Know.—The various County Councils in most cases are responsible for the regulations. Government has nothing to do with the matter, and there is no State limit to the age of candidates. Medical superintendents have a large voice in the selection of their assistants, but we fear that the prospect of success for a man over 40 years of age is very small.

M. H. C.—The Mauser rifle bullets are of varying size according to the calibre of the rifle, but the mean weight is about 200 grains. The Lee-Metford—i.e., Mark II., Mark IV., and the Dum-Dum—bullets all weigh the same—namely, 215 grains.

Locum should be careful not to break the spirit of his undertaking whatever the letter may be. He must consult a solicitor as to his legal position. What he wishes to do does not commend itself to us.

J. B.—If nothing has been pre-arranged in the matter we think a week's notice must be accepted.

A. J. P., Leeds.—We are making inquiries.

Verax can sign the certificate.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 18th, 1900.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
Jan. 12	30·40	S.E.	...	57	44	57	36	38	Foggy
" 13	30·28	S.	...	63	43	33	33	34	Hazy
" 14	30·01	S.E.	...	57	40	31	31	33	Fine
" 15	29·68	S.W.	0·02	51	48	31	39	40	Raining
" 16	29·46	S.W.	0·18	55	48	40	42	43	Raining
" 17	29·53	S.	0·36	73	52	41	43	43	Raining
" 18	29·83	WNW	0·10	70	46	38	37	39	Fine

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.).

WEDNESDAY (24th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.).

THURSDAY (25th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.).

FRIDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.).

SATURDAY (27th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (22nd).—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Discussion on the Pathology and Treatment of Appendicitis (opened by Mr. C. B. Lockwood and Dr. W. H. Allchin). (Mr. Lockwood's remarks will be illustrated by a series of lantern slides from micro-photographs.)

TUESDAY (23rd).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—Papers:—(1) Mr. C. A. Ballance: On the Conduct of the Mastoid Operation for the Cure of Chronic Purulent Otorrhœa; with remarks on the Cases requiring the Mastoid Operation by Sir William Dalby.—(2) Mr. A. E. Cumberbatch: The Complete Mastoid Operation for the Cure of Chronic Suppurative Disease of the Middle Ear, Observations on the Selection of Cases for Operation.

WEDNESDAY (24th).—DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND (20, Hanover-square, W.).—4.30 P.M. Informal Exhibition of Cases. 5 P.M. Ordinary Meeting.
SOCIETY OF ARTS.—8 P.M. Mr. W. O. H. Meade-King: Local Government and its Relation to Parish Water-supply and Sewerage.

THURSDAY (25th).—OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—8 P.M. Patients and Card Specimens. 8.30 P.M. Papers:—Dr. W. Edmunds: Experimental Exophthalmos and Enophthalmos.—Mr. A. Lawson: Corneal Horns.—Mr. C. H. B. Shears: Acute Glaucoma following a single Application of Hematropine.—Mr. W. M. Beaumont: Family Tendency to Ophthalmoplegia Externa.
BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Discussion on the Treatment of Nervous Diseases and Affections by Baths and Climate (introduced by Dr. H. Campbell).

FRIDAY (26th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. J. Hutchinson, jun.: Two Cases of Successful Primary Resection of Gangrenous Small Intestine.—Mr. Pearce Gould: A Case of Bullet Wound of the Abdomen with Four Wounds of Small Intestine and Two of the Mesentery, Operation, Recovery.—Dr. Rolleston: A Case of Fatal Hæmopneumothorax of unexplained origin.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (22nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. F. Payne: Consultation. (Skin). 5 P.M. Dr. D. Grant: Class. Demonstration II:—Practical Otology.
LONDON THROAT HOSPITAL (204, Gt. Portland-street, W.).—4.30 P.M. Dr. F. Potter: Examination of Throat. (Post-Graduate Course.)

TUESDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Sir W. H. Broadbent, Bart: Consultation. (Medical.)
WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. H. Lloyd Williams: Some Dental Lesions.

WEDNESDAY (24th).—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.). 4.30 P.M. Dr. T. D. Savill: Lupus Vulgaris. (Post-graduate Course.)
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. B. W. Roughton: Consultation. (Surgical.)

THURSDAY (25th).—WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM (73, Welbeck-street, W.).—5 P.M. Clinical Demonstration:—Dr. T. D. Savill: Cases of Infantile Paralysis and other Amyotrophies.
WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. S. Edwards: Common Affections of the Rectum and Anus.
MEDICAL GRADUATES' COLLEGE AND POLYCLINIC) 22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson: Consultation. (Surgical.)
THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Garrod: Demonstration of Selected Cases.
CHARING-CROSS HOSPITAL.—4 P.M. Dr. Bruce: Medical Cases. (Post-graduate Course.)

FRIDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. StClair Thomson: Consultation. (Eye, Ear, Nose and Throat.)

During the week marked copies of the following newspapers have been received: *Brighton Gazette, East Daily Press (Norwich), Lloyd's Weekly Newspaper, Hull Daily Mail, Morning Herald, Dundee Advertiser, Leicester Daily Post, Nottingham Daily Guardian, Wigan Observer, Glasgow Herald, Leeds Mercury, Nuneaton Observer, Bedford Record, Kentish Observer, Midland Counties Herald, Times of India, Pioneer Mail, Cheltenham Mercury, Surrey Leader, Whitby Gazette, Western Mail, Western Morning News, Bradford Observer, Express and Star, Ealing Guardian, Warrington Guardian, Scotsman, Architect, Builder, Citizen, Liverpool Daily Post, Health, Bristol Mercury, Sanitary Record, Yorkshire Post, Indian Textile Journal, Leeds Mercury, Cheltenham Examiner, Hereford Mercury, First Aid, Poole Herald, Le Courrier de la Presse, Mining Journal, City Press, Local Government Chronicle, Hertfordshire Mercury, Jackson's Oxford Journal, Reading Mercury, Birmingham Daily Mail, British Dental Journal, Beverley Guardian, Normanton Herald, Kent Herald, Potteries Advertiser, Surrey Advertiser, Local Government Journal, Weekly Free Press and Aberdeen Herald, Kilmarnock Herald, Tewkesbury Record, Highland News (Inverness), Ballymoney Free Press, Birmingham Daily Post, Western Telegraph (Urmston), &c., &c.*

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THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1899, which was completed with the issue of Dec. 30th, and the Title-page to the Volume, were given in THE LANCET of Jan. 6th.

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